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ABSTRACT

As one of the components of the Project ACTIVE (All Children Totally Involved Exercising) Teacher Training Model Kit, the manual is designed to enable the educator to organize, conduct, and evaluate individualized-personalized programs for children in grades 4 through 12 with postural abnormalities. An introductory chapter covers definitions and student and teacher behavioral objectives. Recommended in Chapter II is a screening procedure (which includes the New York Posture Test and the Modified Iowa Posture Test) to appraise dynamic body mechanics. A systematic procedure for assessing student progress is explained in Chapter III. Chapter IV shows the interrelationship between the diagnostic and prescriptive processes. Chapter V focuses on the evaluation of student progress at the end of a specific block of time so that a decision can be made regarding subsequent programing. The exercises and activities described in Chapter VI are noted to provide a cluster of student learning experience that will improve factors (which include contracted arches) listed in the Physicians' Posture Examination Form. Appended are such materials as a glossary, a postural abnormalities flowchart and activity list, and a list of supply and equipment needs. (SBH)

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POSTURAL ABNORMALITIES

AN INDIVIDUALIZED PROGRAM

Thomas M. Vodola, Ed.D.
Project Director

Project ACTIVE: All Children Totally InVolved Exercising

Project Number: 72-341, Title III-IV (C), ESEA

MEMO FROM THE COMMISSIONER

"On behalf of the Department of Education, State of New Jersey, I wish to bring Project ACTIVE to the attention of educators throughout the nation. The program has made a significant contribution to both physical and special education in New Jersey and thus will be of interest to both educators and parents."

Fred G Burke

Dr. Fred G. Burke
Commissioner of Education
New Jersey Department of Education

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1976

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Burlington	Lenape Regional High School
	Maple Shade
	New Lisbon State
	Willingboro
Camden	Bellmawr
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Cape May	Lower Township
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PREFACE

The development of the Project ACTIVE manual, *Adapted Physical Education: Postural Abnormalities* was a cooperative effort of the Township of Ocean School District and the Office of Program Development, Division of Research, Planning and Evaluation, Department of Education, State of New Jersey.[1] The manual provides a sound basis for individualizing a physical education program for students who evidence body mechanics problems.

In 1975 the Project ACTIVE manual, *Adapted Physical Education: Postural Abnormalities* was validated by the standards and guidelines of the United States Office of Education as successful, cost-effective and exportable. As a result, the program is now funded through the New Jersey Elementary and Secondary Act, Title III program to offer interested educators the training and materials required for its replication. This manual was prepared as part of the program's dissemination effort.

The purpose of Title III-IV (C) is to encourage the development and dissemination of innovative programs which offer imaginative solutions to educational problems. Project ACTIVE achieved this purpose by disseminating its innovative program to 500 teachers and paraprofessionals through 24 regional workshops. Further, as of June 1975, 76 school districts and agencies in the State of New Jersey have adopted or adapted some aspect of the individualized physical education program in accordance with the educational needs of their districts – involving more than 10,000 individuals.

This manual has been prepared as one of the components of the Project ACTIVE Teacher Training Model Kit. Other component parts of the model kit which are available to those who are interested in adopting or adapting the project's individualized-personalized instruction concept are cited below:

- Developmental Physical Education: Low Motor Ability
- Developmental Physical Education: Low Physical Vitality
- Adapted Physical Education: Nutritional Deficiencies
- Adapted Physical Education: Breathing Problems
- Developmental & Adapted Physical Education: A Competency-Based Teacher Training Program
- Adapted Physical Education: Motor Disabilities or Limitations
- Adapted Physical Education: Communication Disorders
- Teacher Training Filmstrip A Competency-Based Approach
- Motor Ability Filmstrip: An Individualized-Personalized Approach

These manuals have been validated for national dissemination and may be purchased from the project director.

[1] Adapted Physical Education is defined as that aspect of the physical education program which addresses itself to the provision of enrichment of physical activities for those students who manifest medically-oriented problems.

Districts interested in establishing individualized physical education programs for the handicapped need assistance. The following dissemination-diffusion services are provided to aid implementing schools during the initial phases of program installation:

- Teacher training workshops
- Individual pupil time prescriptions
- Certificates of merit for pupil achievement and/or improvement
- Monthly issue of the ACTIVE Newsletter
- Test instruments to assess pupil performance
- Development of school norms
- Other general consultant service

For additional information regarding the Model Kit, other awareness materials, or available services, the reader is requested to contact:

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The manual, *Adapted Physical Education: Postural Abnormalities* is based on the Developmental and Adapted (D&A) Program developed by the Project Director in the Township of Ocean School District, Oakhurst, N.J.

Appreciation is expressed to the Township of Ocean Board of Education, Superintendent of Schools, the D&A Council, teachers, students, and parents for their total commitment to the program. Special appreciation is accorded to the Township of Ocean Physical Education Department for their unstinting support and effort.

To Prentice-Hall, Inc., a special vote of thanks for granting the Project Director permission to include materials from his text, *Individualized Physical Education Program for the Handicapped Child.*

Sincere appreciation is also accorded to the Advisory Council members who assisted in the reviewing and editing process: Mr. Sal Abitanta, Consultant, New Jersey State Department of Education, Dr. David Bilowit, Professor, Kean College of New Jersey, Mrs. Edwina M. Crystal, School Psychologist, Township of Ocean School District, Mr. Al Daniel, Coordinator, Developmental Physical Education, Cherry Hill School District, Dr. George Gerstle, Assistant Professor, Glassboro State College, Mr. Paul Porado, Program Director, Office of Special Services, N.J. Department of Education, and Dr. Marion Rogers* Professor, Glassboro State College. Also special thanks to the project consultants; Miles Drake, M.D. representative of the New Jersey Chapter of the American Academy of Pediatrics; Dr. Raymond Weiss, Professor, Department of Health, Physical Education and Recreation, New York University; and Dr. Julian U. Stein, Director, Program for the Handicapped, American Association of Health, Physical Education and Recreation, Washington, D.C.

To Mrs. Jean Harmer, Mrs. Mary Kesperis, Mrs. Dorothy Smith, and Mrs. Ellen Kearney gratitude and appreciation for their painstaking devotion to the development of the intermediate "products".

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Special thanks are extended to the Project ACTIVE cadre team, for the many hours they devoted to assist in the restructuring of the final product. The synthesizing team consisted of: Mrs. F. June Graf, Livingston School District; Mr. Robert Fraser, Wayne Township Public Schools; Mr. Robert Ekblom, Madison Township Public Schools; Mr. Thomas Cicalese, Morris Hills Regional District; Mr. Tim Sullivan, Montclair State College; Mr. G. "Buzz" Buzzelli, Monmouth College; Mr. Roy Lipoti, New Lisbon State School, Garden State School District; Mr. Edward Korzun, Orange Public School System; Mr. Thomas Pagano, Township of Ocean School District; Mr. Lawrence A. Guarino, Newark School District; Mr. Al Daniel, Cherry Hill School District; and Dr. David Bilowit, Kean College of New Jersey. Credit for the art work is accorded to Mr. Athan Anest, Wall Township School District.

*Retired as of July, 1973

To the New York State Department of Education, Lea and Febiger and the many other authors and publishers who permitted the use of their materials, I express my sincere appreciation.

Finally, to Emil Praksta,** a representative of the South Jersey Educational Improvement Center, the co-director of this project and a personal friend, my sincere appreciation for his constant stimulation, support, and critical review of all materials.

A final Note: Although the aforementioned "team" made many constructive suggestions which were included in the manual, I accept full responsibility for the final product, and any criticisms thereof, because all final decisions were a reflection of my personal philosophy.

Thomas M. Vodola, Ed.D.
Title III, Project Director

**Recently deceased

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INTRODUCTION

CHAPTER ONE

INTRODUCTION

OVERVIEW

Adapted Physical Education: Postural Abnormalities has been developed to serve two purposes:

1. To provide a manual for training physical educators, special educators, recreation teachers and paraprofessionals so they can achieve the minimal competencies necessary to implement an individualized body mechanics program for students in grades four-twelve.[1]

2. To provide practitioners in the field with a structured procedure for individualizing a body mechanics program for students who evidence specific postural abnormalities.

The program has been field-tested at several sites in New Jersey. The purpose of the studies was to compare the relative effects of individualized-personalized (IP) and traditional physical education programming on students who evidence postural abnormalities. All studies resulted in similar findings; the IP approach was superior to the traditional teaching-learning process. Based on these findings, the program was validated according to the standards and guidelines of the United States Office of Education as innovative, successful, cost effective, and exportable.

The manual provides the teacher with a sequential approach to initiating an individualized body mechanics program.

This chapter contains definitions and criterion-referenced objectives which provide a basis for evaluating student and teacher performance. (Refer to Appendix A for glossary of terms.) Subsequent chapters detail the individualized process via the acronym T.A.P.E., i.e., test, assess, prescribe, and evaluate.[2] (For a detailed description of the step-by-step procedures necessary for program implementation, the teacher is referred to the flow chart and activity checklist in Appendix B.)

[1]The terms "body mechanics" and "posture" are not used interchangeably. "Body mechanics" is used to denote overall efficiency of movement; "posture" refers to static body positions.

[2]Frank Hayden, *Physical Fitness for the Mentally Retarded*, p.9.

DEFINITIONS

Since this manual provides an *individualized-personalized* body mechanics program for children with *postural abnormalities*, definitions of the three terms are warranted:

Postural Abnormality

A postural abnormality is an imbalance in muscle tone of the body which results in inefficient and ineffective body mechanics. Students with a composite screening score of 70 or below, or a single item score of 1 on the modified New York Posture Screening Test are referred to the medical inspector as evidencing a possible postural abnormality.

Individualized Instruction

Diagnosis and prescription are the basic ingredients necessary for the provision of individualized instruction. The strategies involved include: formal and informal testing; formative and summative assessment; prescription; and evaluation.

Personalized Instruction

Personalized instruction deals with the humanistic aspects of the teaching-learning process. It stresses not only the development of teacher-pupil rapport but also the enhancement of the child's self-concept.

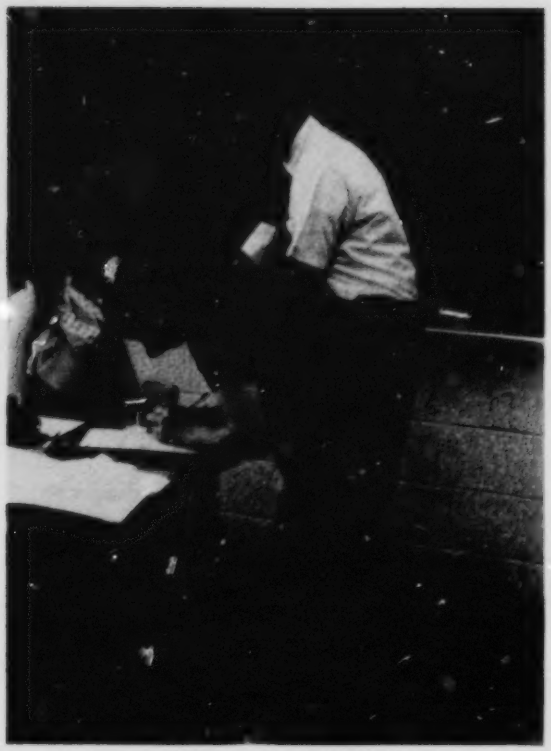


Fig. 1-1 Recording Personal Scores

TEACHER BEHAVIORAL OBJECTIVES[1]

1. Administers the modified New York Posture Screening Test and computes a subject's composite score. Evaluative criteria: a composite score which does not deviate more than five points from a score derived by the instructor. (Assumption: the same subject is screened by the teacher and the instructor.)
2. Distinguishes between a potential "structural" or "functional" curvature of the spine. Evaluative criteria: when suspending the body weight by grasping an overhead ladder or stall bar, the vertebral processes of the spinal column align properly if the problem is "functional", if, however, the vertebral processes do not realign properly, the problem is "structural."
3. Identifies the specific scoliotic problem (i.e., total "C" curve, LD/RL, etc.)
4. Ascertains whether a scoliotic condition is attributable to a disparity in the length of the left and right leg. Evaluative criteria: proper measurement of each leg with a steel tape.
5. Discerns potential scapula displacement. Evaluative criteria: proper measurement of scapula deviation from the spinal column.
6. Identifies a posture problem and prescribes exercises and activities to alleviate the muscular imbalance. Evaluative criteria: exercises and activities cited in Chapter VI.

STUDENT BEHAVIORAL OBJECTIVES[1]

1. The student attains a minimum posture rating score of 85, with no single component score of less than 4, on the modified New York Posture Screening Test (grades 3-12). (Student performance is assessed by the teacher for grades 3-6 and by the partner for grades 7-12.)
2. The student administers the modified New York Posture Screening Test to assess static and dynamic posture. Evaluative criteria: discerning anterior-posterior and lateral deviations on a 7-4-1 basis (grades 7-12). (Student assesses the posture of his partner.)
3. The student performs his exercises properly. Evaluative criteria: descriptive exercising material issued in class (grades 3-12). Student performance is assessed by the teacher.)
4. The student evidences proper body mechanics during his normal daily pursuits (grades 3-12). Evaluative criteria: teacher's subjective evaluation of the pupil's performance of locomotor skills (i.e., sitting, rising, lifting an object, etc.) during the school day.

Fig. 1-2 Checking for Potential Scoliosis (Training Program, University of Northern Iowa, Cedar Falls, Iowa)

[1] Refer to Appendix I for student achievement certificate.

[1] Refer to Appendix H for teacher certificate of achievement.

TEST PROCEDURES
TAPE

CHAPTER TWO

TEST PROCEDURES

A
P
E

The prime responsibility for the identification of postural abnormalities lies with the family or school physician. Prior to the medical examination, however, the physical educator can be of invaluable assistance by screening students for potential problems.

The screening procedure recommended includes the administration of: the New York Posture Test[1] – to appraise static posture, and the Modified Iowa Posture Test[2] – to appraise dynamic body mechanics.

The screening procedure provides:

1. An instrument that is practical for school use. (Approximately 20-25 students can be screened in a 50-minute period.)
2. An overall appraisal of a pupil's static and dynamic posture.
3. Cut-off scores for referring a pupil to the family or school physician for a comprehensive posture examination (70 or below), or recommended release from the Adapted Program (85 or above).
4. A reasonably objective means of appraising pupil progress at periodic intervals.

Note: It must be reiterated that the procedure recommended is only for screening purposes; the final identification of postural abnormalities can only be determined by the family or school physician.

[1] *New York State Physical Fitness Test*, pp. 13-15.

[2] M. Gladys Scott and Esther French, *Measurement and Evaluation in Physical Education.*

TEST PROCEDURES

Administration Procedures for Posture Screening Test[3]

Recommended screening procedures for identifying students with potential body mechanics problems involve the following series of steps (refer to Appendix C for Posture Screening Grid Construction Directions):

1. Reproduce New York Posture Rating Charts. (Refer to Figure 2-2.)[4]
2. Use constructed posture grid or Symmetrigraf[5] to screen students.[3] Also have available a tray with a foam-rubber insert filled with a foot disinfectant solution; a chair; a stadiometer; and a reasonably bulky object.

[3] (Refer to Appendix D for another procedure for evaluating postural and body alignment developed by Al Daniel, Cherry Hill Public Schools, Cherry Hill, N.J.)

[4] Division of Physical Education and Recreation, New York State Education Department, "Posture Rating Chart" *New York State Physical Fitness Test.* (Permission was granted by the New York State Department of Education to reproduce forms as they are no longer available commercially.)

[5] "Symmetrigraf," Reedco, Inc.

3. Students to be tested (maximum of five at a time) should line up alphabetically; as one finishes, he returns to class and sends in the next student. While they wait, boys remove gym shoes, stockings, and shirts and don shorts, and girls remove shoes and stockings, and don bathing suits.

4. The testing sequence involves: height and weight check by an assistant; posture screening to detect static posture (use foot bath solution to provide imprint for detecting flat feet and to serve as a disinfectant); assessing dynamic posture by observing each student walking to a chair, sitting and rising, and lifting and placing an object on the floor.

Test directions, modified Iowa Posture Test. Subjectively observe each pupil as he walks to and from the grid, sits, rises from the chair, and lifts and places an object on the floor. (It is important that the teacher repeatedly request that each child relax throughout the screening, since rigid unnatural body mechanics will decrease the validity of the screening.)

Scoring procedure, modified Iowa Posture Test. Aspects of the Iowa Posture Test are included to provide a means of assessing the student's dynamic posture. The teacher should be aware of, and record anecdotal remarks for the following atypical patterns:

- Improper alignment of body parts (while walking)
- Slouched sitting posture (i.e., exaggerated back curve, head and shoulders forward)
- Lifting an object by bending the back rather than the knees and hips, and supporting the object away from the center of gravity
- Setting an object down (use the same criteria as for lifting an object)

Test directions, modified New York Posture Rating Chart.[1]

Equipment needed:

1. Heavy, clearly visible plumb line.
2. Convenient stationary support for plumb line.
3. Masking tape (approximately 1" wide).
4. Backdrop or screen.
5. Grease pen

Procedure:

1. Suspend a plumb line from a stationary support in front of an appropriate screen so that the bob touches the floor. Directly under the bob, construct a straight line using the masking tape. This line should begin at a point on the floor three feet from the bob toward the screen, pass directly under the bob and extend ten feet on the examiner's side of the bob. (Refer to Figures 2-2 and 2-3.)
2. The pupil assumes a comfortable and natural standing position between the plumb line and the screen, straddling the short end of the floor line with his back to the plumb line.
3. The examiner takes a position on the floor line about ten feet from the pupil with the plumb line between himself and the pupil.
4. After the pupil's lateral posture and feet have been rated, he makes a one-quarter left turn so that his left side is next to the plumb line and stands with his feet at right angles to the floor line.
5. Examiner scores each segment as shown on the Posture Rating Chart.
   a. First, observe the pupil; then review the illustrations and descriptions on the Posture Rating Chart.
   b. Evaluate the pupil and record his score in the box under the appropriate grade column.
      (1) Pupil's score on each segment should be 7, 4, or 1. The sum of the thirteen scores should then have the constant of 9 added to it.

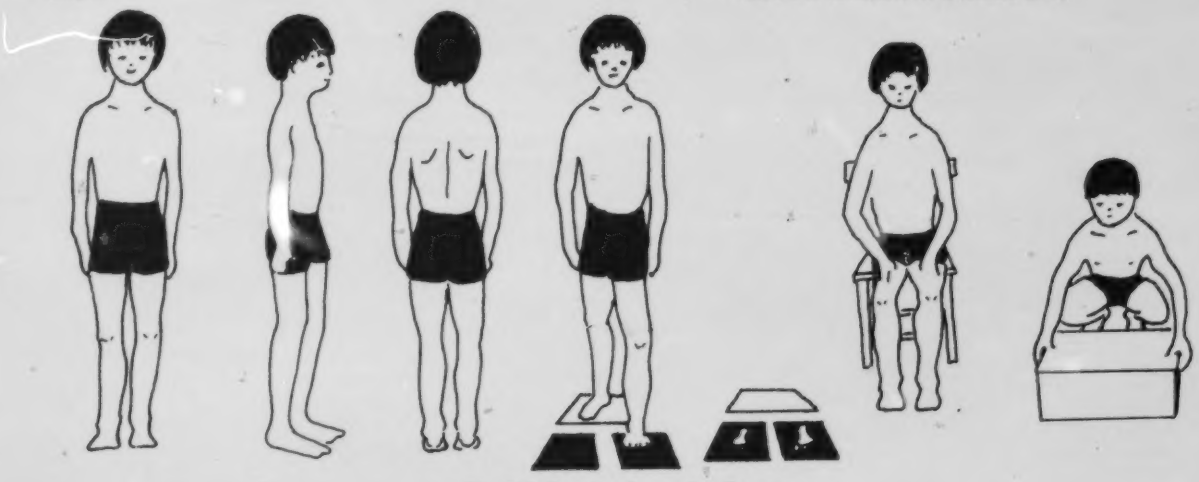


Fig. 2-1 Posture Screening Sequence

[1] Division of Physical Education and Recreation, *op.cit.*, p. 14.

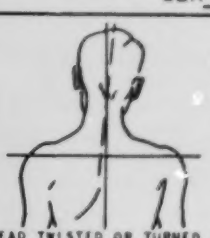
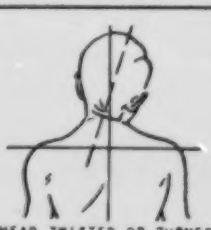
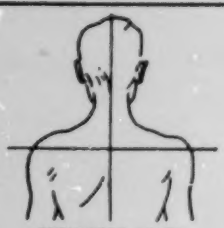
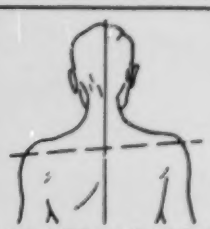
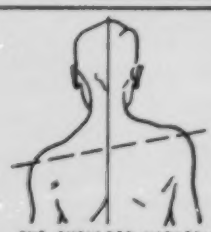
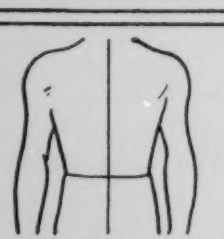
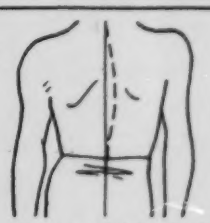
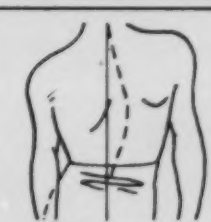
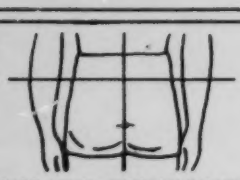
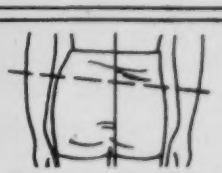
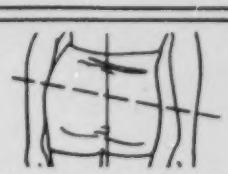
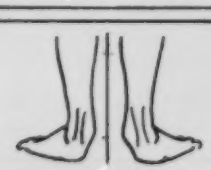
POSTURE RATING CHART

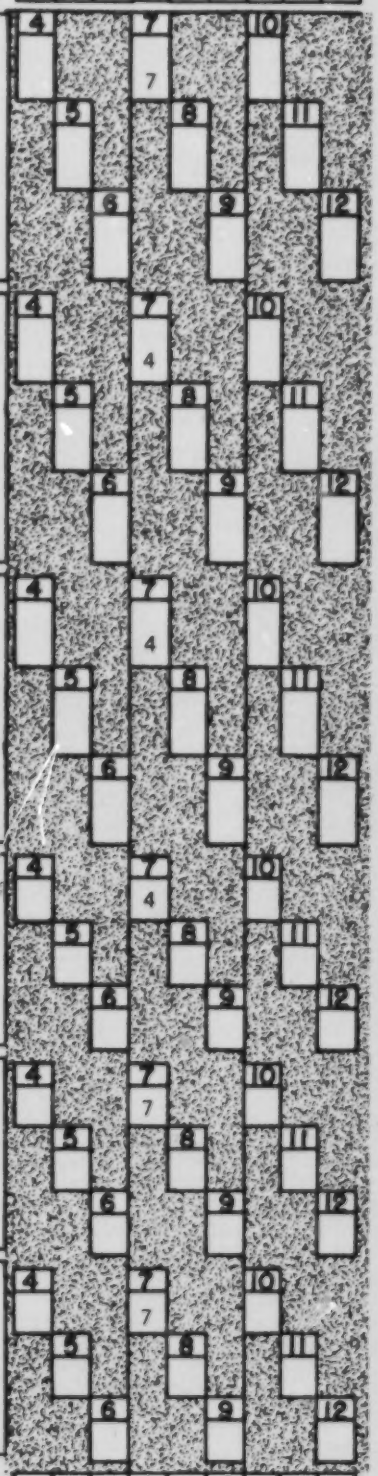
NAME Doe (Last) John (First) AGE 12 SEX M

Grade 4 5 6 7 8 9 10 11 12

Rater's Initials TV

Date of Test 9/74

7 HEAD ERECT GRAVITY LINE PASSES DIRECTLY THROUGH CENTER	4  HEAD TWISTED OR TURNED TO ONE SIDE SLIGHTLY	1  HEAD TWISTED OR TURNED TO ONE SIDE MARKEDLY
7  SHOULDERS LEVEL (HORIZONTALLY)	4  ONE SHOULDER SLIGHTLY HIGHER THAN OTHER	1  ONE SHOULDER MARKEDLY HIGHER THAN OTHER
7  SPINE STRAIGHT	4  SPINE SLIGHTLY CURVED LATERALLY	1  SPINE MARKEDLY CURVED LATERALLY
7  HIPS LEVEL (HORIZONTALLY)	4  ONE HIP SLIGHTLY HIGHER	1  ONE HIP MARKEDLY HIGHER
7 FEET POINTED STRAIGHT AHEAD	4 FEET POINTED OUT	1  FEET POINTED OUT MARKEDLY ANKLES SAG IN (PRONATION)
7 ARCHES HIGH	4 ARCHES LOWER, FEET SLIGHTLY FLAT	1 ARCHES LOW, FEET MARKEDLY FLAT



Total Page One 33

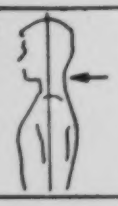
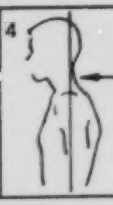
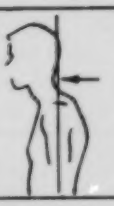
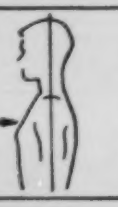
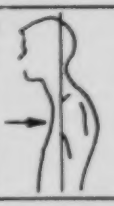
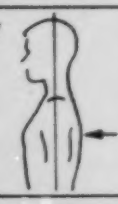
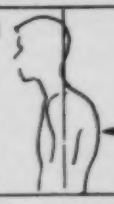
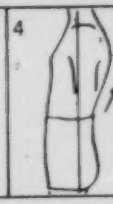
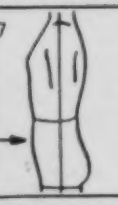
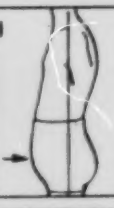
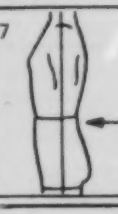
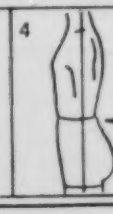
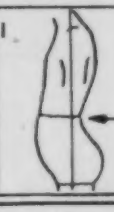
Fig. 2-2

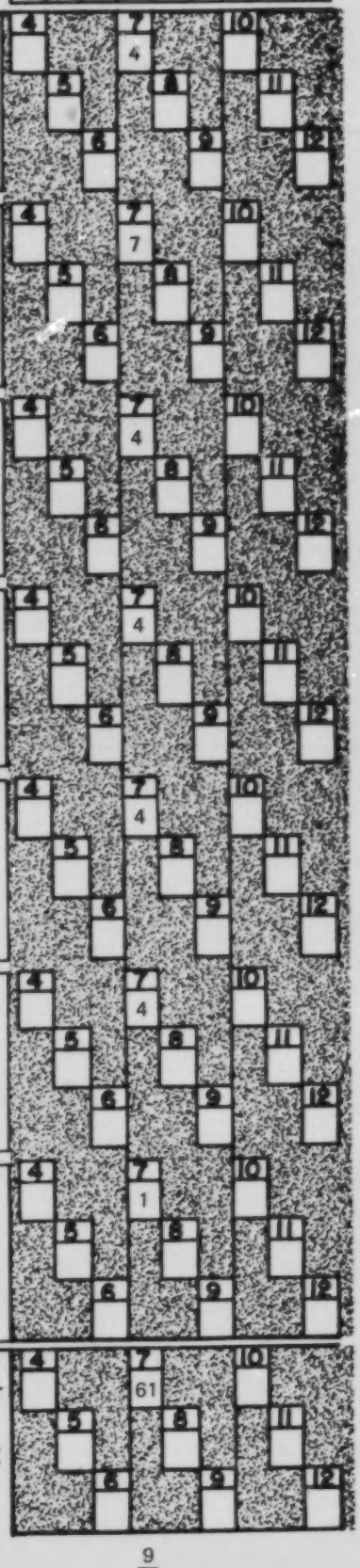
(Courtesy of the New York State Education Department. Screening has been modified to 7-4-1.)

5

Fig. 2-2 (Continued)

Grade	4	5	6	7	8	9	10	11	12
Total Page One				33					

7  NECK ERECT, CHIN IN, HEAD IN BALANCE DIRECTLY ABOVE SHOULDERS	4  NECK SLIGHTLY FORWARD, CHIN SLIGHTLY OUT	1  NECK MARKEDLY FORWARD, CHIN MARKEDLY OUT
7  CHEST ELEVATED BREASTBONE FURTHEST FORWARD PART OF BODY	4 CHEST SLIGHTLY DEPRESSED	1  CHEST MARKEDLY DEPRESSED (FLAT)
7 SHOULDERS CENTERED	4 SHOULDERS SLIGHTLY FORWARD	1 SHOULDERS MARKEDLY FORWARD (SHOULDER BLADES PROTRUDING IN REAR)
7  UPPER BACK NORMALLY ROUNDED	4 UPPER BACK SLIGHTLY MORE ROUNDED	1  UPPER BACK MARKEDLY ROUNDED
7 TRUNK ERECT	4  TRUNK INCLINED TO REAR SLIGHTLY	1 TRUNK INCLINED TO REAR MARKEDLY
7  ABDOMEN FLAT	4 ABDOMEN PROTRUDING	1  ABDOMEN PROTRUDING AND SAGGING
7  LOWER BACK NORMALLY CURVED	4  LOWER BACK SLIGHTLY HOLLOW	1  LOWER BACK MARKEDLY HOLLOW



TO OBTAIN TOTAL RAW SCORE:

1. Determine the score for each of the above 13 items as follows:
   - 7 points if description in left hand column applies
   - 4 points if description in middle column applies
   - 1 point if description in right hand column applies
2. Enter score for each item under proper grade in the scoring column
3. Add all 13 scores, plus a constant of 9 and place total in appropriate space.

TOTAL RAW SCORE

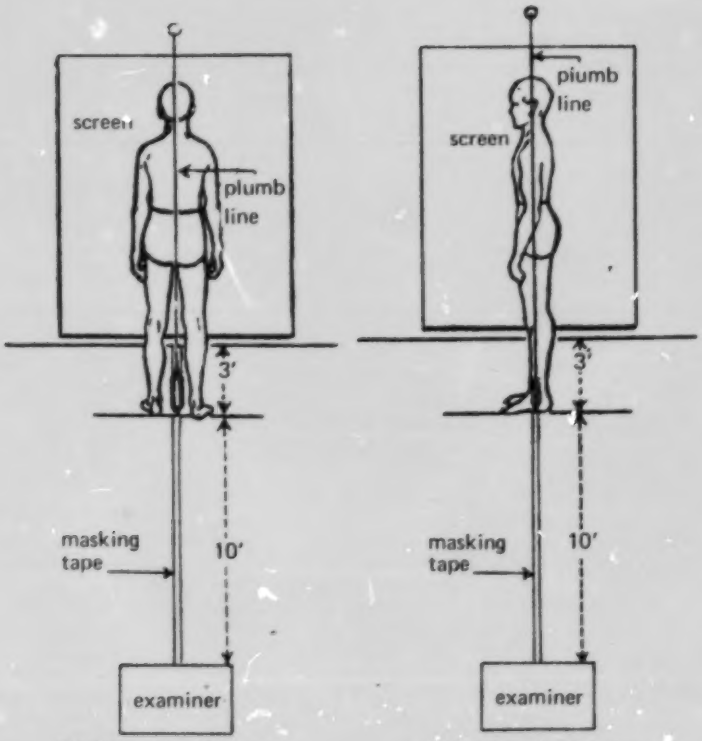


Fig. 2-3 N.Y. Posture Screening Procedure[1]

(2) Each segment should be scored separately; the scoring of the previous segments should not be allowed to influence the score of the segment under consideration at the moment.

Scoring procedure, modified New York Posture Rating Chart. The student's total score is a composite of the 13-item New York Posture Rating Test, plus anecdotal comments regarding the dynamic movements. Note: Although the New York Screening Test is scored on a 5-3-1 basis, the recommended procedure is to score on a basis of 7-4-1. A perfect score on the New York Test is 65; a maximum score under the proposed procedure would be 91 (the addition of 9 points to all raw scores gives a potential maximum score of 100). This adjustment makes the scores more meaningful to students since they tend to view scores in terms of the arbitrary 100 standard.

Other Informal Tests of Anteroposterior Body Alignment[2]

Vertical alignment against rod. Place a rod or broomstick in a vertical position in a block or can of cement. The student stands on one side of the upright; the teacher stands on the opposite side. The teacher, or a student partner helps the child to align himself with the rod (line of gravity). Proper segmental alignment would be reflected if the rod passes through the ear lobe, center of shoulder, hip joint, slightly behind the knee-cap, and just forward of the ankle. (Refer to Fig. 2-4.)

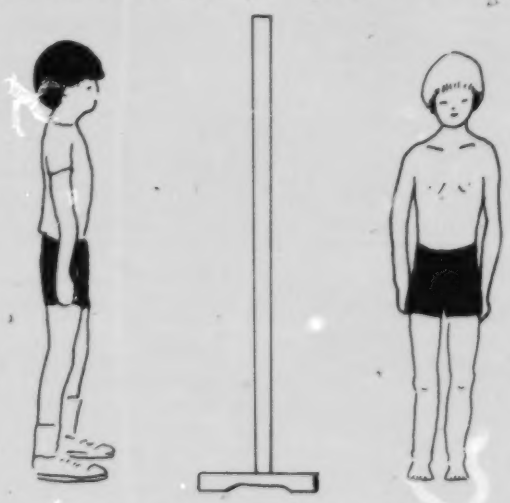


Fig. 2-4 Screening for Vertical Alignment

[1] Permission to publish granted.

[2] Marion E. Rogers. "Postural Abnormalities, Nutritional Deficiencies and Low Physical Vitality," p.4.

Symmetrographing.[1] The student stands behind a clear plastic sheet and is screened by the instructor. The teacher notes the displacement of body parts by association with the vertical and horizontal lines.

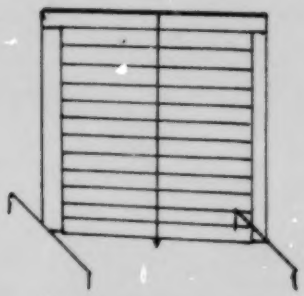


Fig. 2-5 Symmetrographing

Vertical line on wall or edge of open door. The child stands beside the wall and is screened. (The technique should only be used if no other equipment is available as most of the "check points" are not visible).

Fig. 2-6 Vertical Alignment Against Wall

Howland alignometer. The instrument is devised to teach students to "feel" the correct anteroposterior alignment. Rationale: based on the theory that the midpoint of the breastbone and the pelvis (below the umbilicus) should be aligned vertically. The student can check his or her alignment and *perceive the feel* of proper alignment; walk away from the instrument and return to recheck and reinforce the kinesthetic sensation. (Complete directions for constructing a modified version of the Howland Alignometer are provided by Vodola.[2])

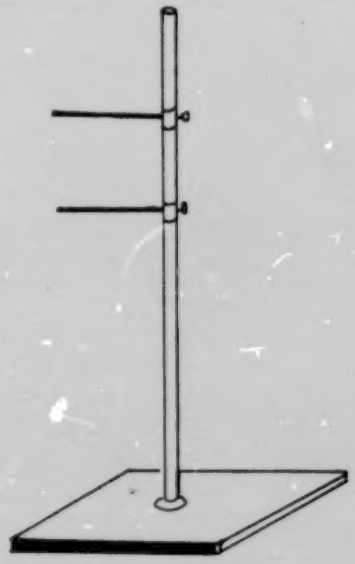


Fig. 2-7. Modified Howland Alignment

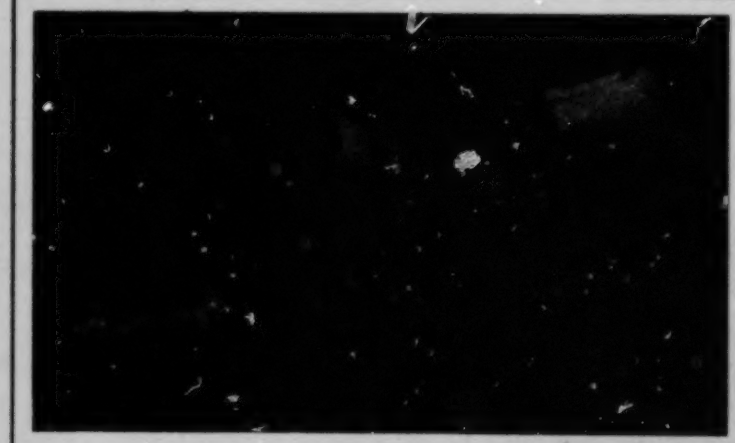
Back wall test. The student stands with his back to the wall. His heels are 2-4" away from the wall, with hips and shoulders touching the wall. He is requested to:

1. Press neck against the wall.
2. Place hands into space between lumbar spine.
3. Press lower back against hands.

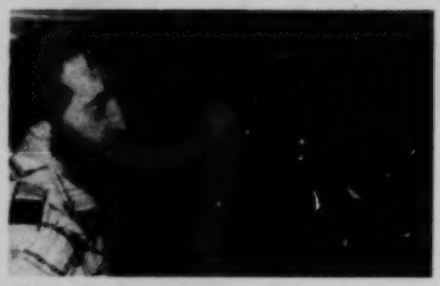
Fig. 2-8. Back Wall Test

[1] Symmetrigraph, Reedco, Inc.

[2] Thomas M. Vodola, *Individualized Physical Education Program for the Handicapped Child*, p. 293.



TAPE ASSESSMENT PROCEDURES



CHAPTER THREE

TAPE ASSESSMENT PROCEDURES

The assessment of student performance is the second step in the individualization of a posture improvement program. Individual strengths and weaknesses can be determined only by the proper diagnosis of pupil performance. Unfortunately, teachers are taught to diagnose performance almost solely on the basis of "product" information (test scores), but lack the observational skills to focus on the "process" information provided by the child, namely, *how* he performs the specific task. The Project ACTIVE Teacher Training Program incorporates both appraisal strategies, objective and subjective. Teachers are trained to assess both "product" and "process" information so that they can compile a complete "picture" of each child's performance. This chapter provides a systematic procedure for assessing pupil progress effectively and efficiently.

OBJECTIVE APPRAISAL

Chapter II described how to administer the Modified New York Posture Screening Test. The following procedure converts into meaningful appraisal information the raw scores provided for the pupil in Figure 2-2 on pages 5 and 6.

1. Identify the Raw Score for Each Posture Category

A problem created by the conversion of raw data to a composite score is that the *total* score does not give the screener information for assessing pupil performance. A review of *individual* scores, however, provides more descriptive information. For example, a cursory review of John's scores, listed below, reveals he has many anterior-posterior postural abnormalities.

Rear View			Side View		
1.	Head position	7	7.	Neck position	4
2.	Shoulder level	4	8.	Chest elevation	7
3.	Spinal curvature	4	9.	Shoulder position	4
4.	Hip level	4	10.	Upper back	4
5.	Foot alignment	7	11.	Trunk position	4
6.	Arches	7	12.	Abdominal posture	4
			13.	Lower back position	1
					61
				constant	+ 9
					70

(A reminder: If the student's total score adds up to 70 or less, or if any single component score is 1, he should be referred to the school nurse for a follow-up examination by the family or school physician.)

Additionally, it should be noted that John manifests a potential scoliotic condition (i.e., a lateral curvature of the spine). His scores of "4" for a dropped right shoulder and a dropped right hip may be indicative of an "S" curve. (See Figure 3-1.) In situations where a potential lateral curvature of the spine is present, the teacher should conduct two additional screening procedures: (1) measure the length of each leg; and (2) measure for scapula displacement.

Procedure for measuring leg length: Have the subject recline in supine position and measure the length of both legs with a steel tape (from the anterior superior spine of the ilium to the internal malleolus (See Figure 3-2).

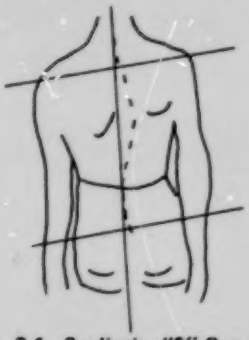


Fig. 3-1. Scoliosis: "S" Curve

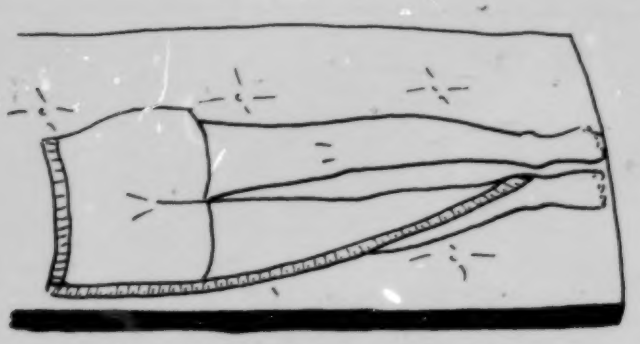


Fig. 3-2. Measuring Leg Length

Procedure for measuring for scapula displacement:

1. Mark the bony protuberances of vertebrae with a water color marking pen.
2. Measure the distance between the inner border of the left scapula to the nearest vertebra. (See Figure 3-3).
3. Repeat the measurement between the right scapula and the nearest vertebra.

John's measurements are as follows: right scapula displacement 1¼", left scapula displacement ¾", right leg length 29", and left leg length 29¾". Thus, the disparity in measurement gave further credence to the possibility of a lateral curvature of the spine. (Note: Students with "suspected" scoliotic conditions should always be referred to the school physician for a follow-up examination, since uncorrected functional problems may result in permanent structural problems.)

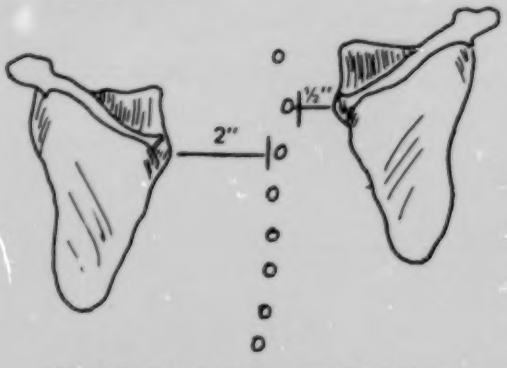


Fig. 3-3. Measuring Scapulae Displacement

2. Plot Profile Chart

Preparing an individual profile of a student's performance aids further in delineating relative strengths and weaknesses. Table 3-1 (p. 11) clearly indicates that a considerable amount of the student's activity period must be devoted to corrective procedures to ameliorate the protruding abdomen and hollow back.

Explanation of the profile technique:

The profile chart technique provides a highly visible means of comparing a student's relative strengths and weaknesses in the factors being measured for any test battery. Further, by plotting pre- and post-test scores, the teacher can obtain progress information relative to each factor. (Note: Zeroes (0) have been added in the profile chart because they make the scores more interpretable to parents.)

SUBJECTIVE APPRAISAL

One has to exercise great caution when using raw normative data for prescribing instructional programs because of: an awareness that children are individuals with different developmental needs that cannot be truly reflected in any table of norms; the fact that normative data provide summative information: (i.e., product or after-the-fact information); the potential error inherent in the administration of any test; and the limitations of any test instrument (i.e., the information provided is limited by the factors being assessed.)

To maximize the assessment of the body mechanics of each child, it is recommended that "process" information be continually recorded in light of each child's developmental needs.

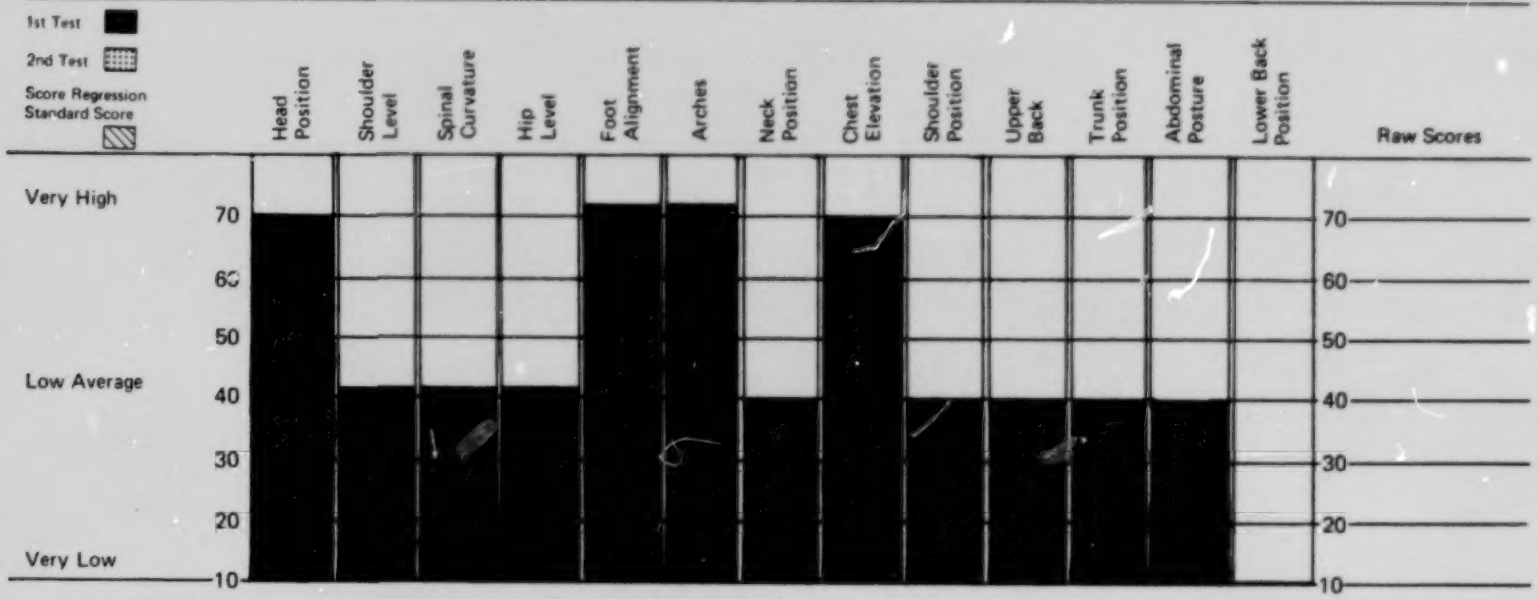
Recording Process Information

Table 3-1 on page 11, provides a place for recording anecdotal remarks. Although the raw scores plotted on the grid indicate John's relative strengths and weaknesses, they do not indicate his specific posture patterns. Thus,

TABLE 3-1

POSTURE PROGRESS PROFILE (Courtesy of the Township of Ocean School District.)

Student's Name Doe, John Age 12 Classification Posture School Ocean Township School



Anecdotal Remarks:

Static Posture: Dropped right shoulder and dropped right hip. Head slightly forward and rounded shoulders. Protruding abdomen marked by hollow back (lordosis). Potential scoliosis: Refer to the school physician for a follow-up examination.

Dynamic Posture:

Walking: slouched body position

Sitting/rising: Abnormal forward curvature of the spine in sitting position

Lifting/setting object down: Bends back when picking up object

Asthmatic (Vital Capacity)	_____	_____
Weight Control (Pounds)	_____	_____
Orthopedic (See Anecdotal Remarks)	_____	_____
Physical Fitness Test	_____	_____
Motor Ability Test	_____	_____

assessment information is extremely limited. However, the combination of the objective information with the process information (i.e., how the child performs) detailed in the remarks section provides a firm basis for proper assessment of performance and for subsequent prescriptive activities. For example, the raw scores of "4" and "4" for shoulder and hip level provide information regarding the severity of the postural abnormalities; the anecdotal remarks (dropped right shoulder and hip respectively) provide insight into the nature of the abnormality. Figure 3-1 (p. 10) depicts an illustration of an "S" curve (lowered shoulder and hip on the same side). In the example presented, the subject may have a scoliotic condition, a lateral curvature of the spine, and should be immediately referred to the family or school physician for a thorough examination. If the subjective assessment had not been made, the student may not have been referred to the medical examiner.

Comments related to John's "dynamic posture" (Table 3-1) provide additional, and possibly more meaningful, appraisal information. Most students tend to assume proper body carriage when requested to stand before a grid, but will manifest their every day carriage when observed performing normal daily tasks.

(Note: Posture exercises in themselves will do little to remediate abnormalities unless the individual practices sound body mechanics in all daily pursuits.)

An Ecelectic Approach to the Problem

Table 3-2, page 13, provides a form to record both objective and subjective date, thus, incorporating the important procedures of both appraisal techniques.

Disposition of the Case

Based on the information gathered resulting from the administration of the modified New York Posture Screening Test, John was referred to his family physician for a complete medical examination.[1] The rationale for the decision:

1. Students with a cumulative score of 70 or below are automatically referred for a follow-up examination.
2. Students with a component score of 1 (number 13, lower back position) are automatically referred for a follow-up examination.
3. Students with potential scoliotic abnormalities are automatically referred for a follow-up examination. (If confirmed, may necessitate placing the subject in a Milwaukee Brace.)

[1]Note: The correlation between staff referrals, based on posture screening, and family and school physician's diagnosis of postural abnormalities in the Township of Ocean School District has exceeded .90 since the inception of the program in 1967.

Other Subjective Appraisal Guidelines[2]

Lateral body alignment and displacement. Proper alignment: The body should be symmetrically aligned over the base of support with: the head and neck erect; shoulders and hips level; and weight carried equally on both feet.

Scoliosis: Lateral Displacement. Scoliosis is a lateral deviation of the spine involving curvature to the side in one or more segments. Initially when only soft tissues (muscles and ligaments) are involved it is called a functional curvature. As curvature persists and progresses the bones will become involved and rotation or twisting of spine occurs in addition to the lateral sagging. At this stage of the bony involvement the curvature is structural. Figure 3-4 illustrates normal lateral alignment. In Figure 3-5, note the trunk displacement to the left with high left shoulder and prominent right hip. An incorrected "C" curve requires the realignment of body parts to counteract the pull of gravity. Note the compensatory curve and further trunk displacement in Figure 3-6.

Fig. 3-4
Normal Alignment

Fig. 3-5
Left Total "C" Curve

Fig. 3-6
"S" Curve

Figures 3-7, 3-8, and 3-9 provide simplified assessment techniques which can be used by the physical educator to screen for functional or structural scoliosis. Note how the abnormal curvature disappears in Figures 3-7 and 3-8. If the abnormal curvature persists with the prominence on the convex side, a structural curvature is highly suspect. (Refer to Figure 3-9.)

[2]Marion E. Rogers, "Postural Abnormalities, Nutritional Deficiencies and Low Physical Vitality," pp. 1-7. (Permission to publish granted.)

TABLE 3-2

INDIVIDUALLY PRESCRIBED POSTURE EXERCISING PROGRAM BASED ON NEW YORK POSTURE RATING CHART

(Courtesy of the Township of Ocean School District)

NAME John Doe AGE 12 SEX M DATE Sept., 1974

I. TEST AND ANALYSIS TEST ITEM		POSTURE ANALYSIS	1	2	3	4
			TEST (SCORES)			
		Anterior-posterior plane				
1.	Head position	Twisted, or turned (R) (L)	7			
2.	Shoulder level	Drop left (L); drop right (R)	4			
3.	Spinal curvature	"S"; "C"	4			
4.	Hip level	Drop (R) (L)	4			
5.	Foot alignment	Straight, pointed out, pronated	7			
6.	Arches	High, medium, flat	7			
		lateral plane				
7.	Neck position	Erect, *forward*, markedly forward	4			
8.	Chest elevation	Elevated, slightly depressed, markedly depressed (flat)	7			
9.	Shoulder position	Centered *slightly forward*, markedly forward (winged scapulae)	4			
10.	Upper back	Normal, *slightly rounded*, markedly rounded	4			
11.	Trunk position	Erect, *inclined rearward*, markedly inclined rearward	4			
12.	Abdominal posture	Flat, *protruding*, protruding and sagging	4			
13.	Lower back position	Normal curves, slightly hollow, markedly hollow	1			
			61			
		Constant score	9			
			70			

II. PRESCRIBED PROGRAM EXERCISE	BASIS FOR PRESCRIPTION
1. Supine, toe touch overhead. 2. Supine, roll knees to chest, extend. 3. Lateral swinging, overhead ladder. 4. Isometric neck exercise. 5. Shoulder shrug, hold. 6. Stretch right arm overhead (to left), stabilize right hip, derotate spine	1. Point system 7-4-1. 2. Prescribe *two exercises* for each factor for which student scored 1 point; *one exercise* for 4 points.

III. EVALUATION AND RECOMMENDATION

SYMBOLS

"C" curve: dropped shoulder and raised hip on same side of body.
"S" curve: dropped shoulder and dropped hip on same side of body.
R: Dropped right shoulder, hip, neck, etc.
L: Dropped left shoulder, hip, neck, etc.

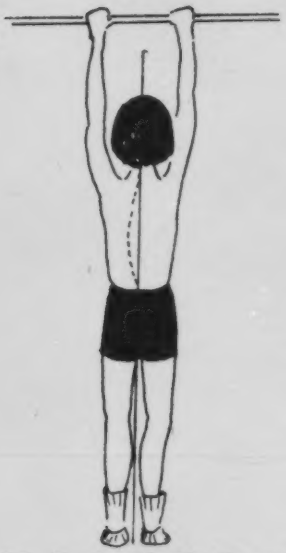


Fig. 3-7. Overhead Ladder Suspension: Functional Curve

Fig. 3-8. Adam's Position: Functional Curve

Fig. 3-9. Adam's Position: Structural Curve

The following information is provided to aid the teacher in appraising pupil posture:

1. The body is constructed with antagonist sets of muscles which give it lateral symmetry and permit it to function with balance and ease.
2. If undue stress or inactivity of any part occurs, antagonist groups become inbalanced, and one set becomes overly strong and contracted at the expense of its opposite, which becomes weakened and stretched. The problem generally is to restore muscle balance and to regain body symmetry over the base of support before the body automatically tries to attain balance by compensating with other curves to combat the original displacement.
3. The physician should prescribe exercise for scoliosis, although simple "C" curvature (functional) may be corrected by change of habits and exercise to restore balance.

Antero Posterior Body Alignment.

Proper alignment: Normal spinal curves with body segments balanced vertically over the base of support. When properly aligned, the center of gravity passes through:

1. Ear lobe
2. Tip of shoulder
3. Hip
4. Slightly rear of knee cap
5. Slightly forward of ankle

Average alignment: Segments not vertically aligned. Indicators:

1. Slightly forward head
2. Rounded (curved) upper back
3. Flexed knees

Poor alignment: Segments improperly balanced over base. Indicators:

1. Head forward
2. Exaggerated curves in back
3. Rounded upper back (kyphosis)
4. Hollow lower back (lordosis)
5. Knees hyperextended rearward

Very poor alignment: Segments displaced extremely over base. Indicators:

1. General body slouch and fatigued appearance
2. Head forward
3. Chest flat
4. Exaggerated curves (elongated)
5. Protruding abdomen (abdominal ptosis)
6. Hyperextended knees

Rogers suggests students be provided the following learning experiences:[1] Teach the concept of tallness (not of straightness).

Provide experience of standing *tall* – concept of stretching self toward sky.

Learning Experiences:

- Keep chin in and top of head level; look ahead as if into a mirror.
- Can you *stretch* yourself – keeping the top of your head level – *high* toward the sky – and carry an eraser on your head?
- Can you stand *tall* like a soldier – an astronaut – with your chin in?
- Can you *stretch* your *neck* upward between your *shoulders* and your *ears* and keep your chin in?
- Can you pull in your trunk between your waist and your armpits and still keep your shoulders and arms loose?

[1] *Ibid.*, p.2

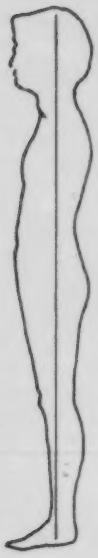


Fig. 3-10. Proper Anteroposterior Alignment

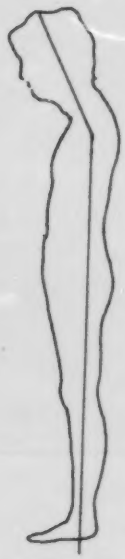


Fig. 3-11. Average Anteroposterior Alignment

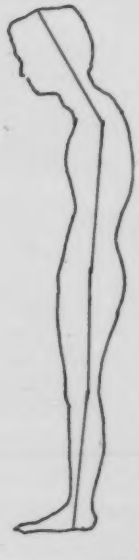


Fig. 3-12. Poor Anteroposterior Alignment

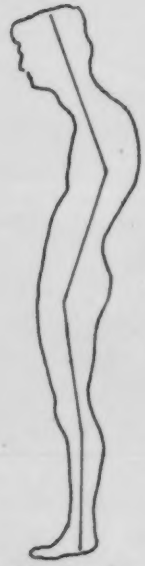


Fig. 3-13. Very Poor Anteroposterior Alignment

- Can you perform all of these tasks and pull your tummy up with chest up high under your ribs?
- Can you walk easily and relaxed and still do these things?
- Are you two inches taller?

General screening for foot and leg alignment. The plumb line should be positioned as follows:

Fig. 3-14 Proper Foot and Leg Alignment

Anterior: from superior bony prominence of hip through patella (knee cap) and pass between first and second toes.

Posterior: from space behind knee vertically through heel end (Achilles tendon). Heel end should be straight and not bowed in or out.

Lateral: from hip joint (posterior to knee cap) and 1-1½" forward of ankle prominence.

The proper walking gait should countenance:

- Toes pointed straight forward, with knees over first and second toes.
- Weight carried from heel along outer border of foot to small toe, and across toes for push off forward by large toe.

Fig. 3-15 Proper and Improper Walking Gait

Indicators of weak and flat feet. Improper leg alignment, faulty muscular development and/or an abnormal walking gait can have a detrimental effect on total body mechanics. Signs and symptoms of potential foot problems would include:

- Frequent leg pains.
- Frequent "turned" ankles.
- Abnormal wearing of heels of shoes (outside or inside).
- Feet turned outward.
- Walking without imparting spring to foot.

ATTITUDE TOWARD SCHOOL

Educators tend to believe that a student's attitude toward school is correlated positively with indicators of school success, such as attendance, truancy, and grade-point average. Accordingly, school districts should develop and implement teaching and learning strategies which will "turn students on."

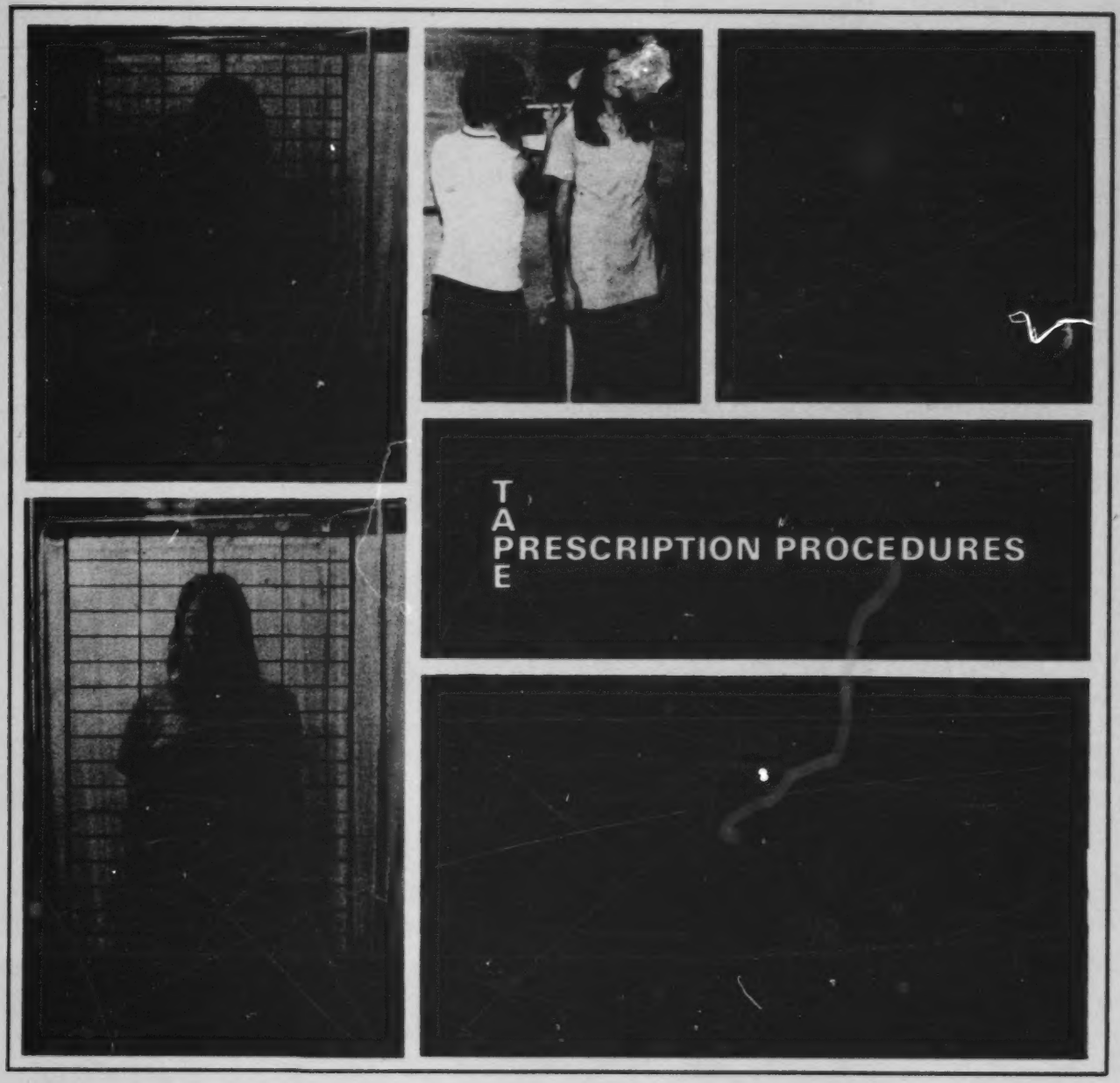
The School Sentiment Index: Intermediate Level has been devised to assess the attitude of students toward various aspects of the school program.[1] It is recommended the instrument, or some section(s) thereof, be administered to students in the D&A Program on a pre-post test basis. A more sophisticated study might be to compare the post-test performance between a random sample of students in the D&A Program and in the regular physical education program. Subscales that might be compared would include: mode of instruction; authority and control; interpersonal relations with pupils; and social structure and climate. The Index is presented in its entirety in Appendix E.

SUMMARY

The "key" to a successful individualized prescriptive program is the implementation of sound assessment procedures. Regardless of the instrument utilized, it is essential that equal importance be given to recording the "how" of pupil performance. At the present time, too much emphasis is placed on "what" the student does.

Developing the ability to assess pupil performance subjectively requires training designed specifically to cultivate the teacher's observational powers. A successful technique in the Project ACTIVE Teacher Training Program is to pair two teachers with one child during the testing periods. One teacher observes terminal behavior and records the raw score, while the partner observes how the child performs the specific components of the test, and records anecdotal remarks. After a period of time, the teachers reverse their assignments. At the end of each session, the teachers discuss the total performance of the child on each task.

[1] *Attitude Toward School*. Grades K-12, Revised Edition (Los Angeles, Calif.: Instructional Objectives Exchange, 1972), pp. 78-89. Permission to publish granted.


TAPE
PRESCRIPTION PROCEDURES

CHAPTER FOUR

TAPE PRESCRIPTION PROCEDURES

Previous chapters have stressed the role that "testing" and "assessing" play in the process of individualizing instruction. Chapter IV shows the interrelationship between the diagnostic and prescriptive processes. The objective and subjective information gathered in Chapters II and III are used as the basis for continuing along the TAPE pathway.

THE PRESCRIPTIVE PROCESS

Adapted physical education is defined as that aspect of the physical education program that relates to children with medically-oriented problems. Although the physical educator is not qualified to state that a child has a specific postural abnormality, and cannot prescribe specific exercises, however, he can, and does, provide an important adjunctive service. In brief his role is to:

1. Screen pupils for potential postural abnormalities.
2. Refer to the school or family physician for follow-up examination those children who have: New York Posture Test scores of 70 or below; a score of "1" on any of the thirteen test items; or evidence of potential scoliosis.
3. Plan exercise time prescriptions.
4. Supervise exercises that have been prescribed by the physician.
5. Modify tasks within the prescription tolerance limits.
6. Present lectures and demonstrations regarding the importance of sound body mechanics.
7. Rescreen students at periodic intervals for consideration for possible release from the adapted program.

Presented below is a more detailed explanation of his role.

1. Screen Pupils for Potential Problems

Chapters II and III presented the recommended screening procedures. John's raw scores and the teacher's anecdotal remarks are provided for review:

Scores

Head	7	Feet	7	Shoulder	4
Shoulder	4	Arches	7	Upper Back	4
Spine	4	Neck	4	Trunk	4
Hips	4	Chest	7	Abdomen	4
				Lower Back	1

Anecdotal Remarks

Static posture:
Dropped right shoulder and dropped right hip. Head slightly forward and rounded shoulders. Protruding abdomen and markedly hollow back (lordosis).
Potential scoliosis:
Refer to the school physician for a follow-up examination.

Dynamic posture:
Walking: Slouched body position.
Sitting and rising: Abnormal forward curvature in the sitting position.
Lifting and setting object down: Bends trunk rather than knees when picking up object.

The above data indicate in three areas that John should be referred to the school physician for a thorough examination: (1) a composite score of 70; (2) a score of "1" for lower back (potential lordosis problem); (3) and a potential lateral curvature of the spine (substantiated by scapulae and leg measurements).

2. School or Family Physician Follow-up Examination

Physical educators frequently express concern regarding the liability issue. Will they be held liable if a student is injured in their adapted physical education classes? The relationship provided between the school or family physician and the physical educator completely eliminates teacher liability.

The first step in the relationship is the development of a form to indicate postural abnormalities that the physician can use quickly and effectively. (See Table 4-1.) Simultaneously, the physical educator prepares a list of exercises recommended by noted medical authorities and groups them according to the categories listed in Table 4-1. These exercises are typed and submitted to the school physician for review, modification and final approval. Chapter VI provides the exercises recommended. (The exercises listed have been approved by the Township of Ocean School Physician, Dr. John Malta.) Thus, when the school physician examines a student and checks certain categories, he also approves that the child undergo any of a series of existing exercises previously approved, i.e., provided he is the student's family physician also.

When dealing with a *family* physician, the procedure is slightly modified. As part of a sound public relations program, the teacher mails to all family physicians in the district area a packet of D&A materials, including the Posture Examination Form and all posture exercises. The family physician is requested either to select exercises from the materials submitted or to recommend other exercises he deems appropriate.

Table 4-1 indicates that the school physician's examination coincided with the screening evaluation. The orthopedic surgeon's x-rays indicated the problem was "functional" and supported the school physician's recommendation (i.e., placing the student in the D&A program).

3. Plan Exercise Time Prescriptions

John has now been approved for D&A scheduling and for the performance of specific exercises. At this time, the teacher's important adjunctive role comes into focus. Should the student perform all of the exercises in the approved categories? Or, is there some basis for equating the prescriptive exercise time with the severity of the abnormality?

A simplified technique for equating the exercise time with the abnormality is to prescribe:

- No exercise for scores of "7"
- One exercise for scores of "4"
- Two exercises for scores of "1"

Vodola[1] has developed a more sophisticated procedure for determining the amount of prescriptive time that should be applied to each area. His technique is based on the use of stanine scores. The following sequential steps use his technique, but have been modified so that the raw scores are substituted for stanine scores. (Districts or agencies in New Jersey implementing the posture program will be provided computerized time prescriptions upon request.)

Step No. 1: Plot all raw scores on the Posture Time Prescription Chart (Refer to Table 4-2.)

Step No. 2: To determine deviation points, subtract each raw score from 7.

Step No. 3: Total deviation points are obtained by adding all deviation points below 7 (shoulder 3, Spine 3, Hips 3, Neck 3, Shoulder 3, Upper Back 3, Trunk 3, Abdomen 3, Lower Back 6); the total equals "30".

Step No. 4: To obtain the prescription time multiplier, divide the total exercising time in seconds by the total deviation points (900÷30=30). Any remainder is to be used as the adjustment time.

Step No. 5: To obtain total prescription time per factor in seconds, multiply deviation points for each factor by the prescription time multiplier (i.e., Shoulder: 3x30=90.)

Step No. 6: To obtain exercise time in minutes and seconds, divide total prescription time in seconds by 60 (e.g., Shoulder 90÷60=1':30).

Step No. 7: To obtain adjustment time, divide the total prescription time in seconds by the total deviation points below 7 (900÷30=30).

(Note: Since there is no remainder, there is no adjustment time. Had there been a remainder, it would be added to the lowest performance score. In the event of two or more equally low scores, the adjustment time is apportioned accordingly.)

By applying the seven-step approach to John's raw scores, we arrive at the following time prescriptions for each postural abnormality:

Shoulder	1:30	Shoulder	1:30
Spine	1:30	Upper Back	1:30
Hips	1:30	Trunk	1:30
Neck	1:30	Abdomen	1:30
		Lower Back	3:00

4. & 5. Supervise Exercises and Modify Prescriptions

Remediation or amelioration of posture problems requires careful supervision of each exercise with possible modification of tasks to insure proper performance and to meet the needs of each student. For example, one of the exercises prescribed to alleviate a "C" curve (i.e., dropped shoulder and raised hip on the same side of the body) is to squat down on one foot and extend the other leg backward, with weight on the toes.

[1] Thomas M. Vodola, *Descriptive Statistics Made Easy for the Classroom Teacher*, pp. 7-10.

TABLE 4-1

POSTURE EXAMINATION FORM

(Courtesy of the Township of Ocean School District.)

SCHOOL Ocean Township

NAME John Doe DATE Sept., 1974

GRADE LEVEL 7 AGE 12 SEX M

To the Physician: Please check areas in need of special exercises; comment where necessary.

Check

___ A. Forward Head

X B. Round Upper Back

X C. Unilateral Shoulders and Hips

___ D. Forward Pelvic Tilt and Flat Back

___ E. Backward Pelvic Tilt and Hollow Lower Back

___ F. Hyperflexed Knees

___ G. Hyperextended Knees

___ H. Contracted Arches

___ I. Kyphosis

X J. Scoliosis

___ K. Single Thoracic Scoliosis

X L. Double Spinal Curvature

X M. De-rotation of Lateral Spinal Curvature

X N. Lordosis

Physician's Signature John Malta, D.O.

Comments: Refer to orthopedic surgeon for x-rays. Place the student in the D&A Program.

(Source: Thomas M. Vodola, *Individualized Physical Education Program for the Handicapped Child* © 1973, p. 174. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, New Jersey.)

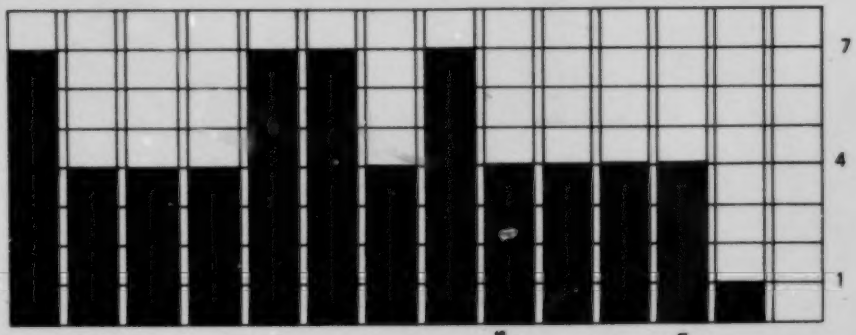
TABLE 4-2
POSTURE TIME PRESCRIPTION CHART[1, 2]

Total Deviation Points Below 7 30

Total Exercise Time 900

Prescription Time Multiplier 30 | 900

Adjustment Time _____



	Head	Shoulder Level	Spine	Hips	Feet	Arches	Neck	Chest	Shoulders Centered	Upper Back	Trunk	Abdomen	Lower Back	Totals
Deviation Points Below 7	–	3	3	3	–	–	3	–	3	3	3	3	6	30
Prescription Time Multiplier	–	30	30	30	–	–	30	–	30	30	30	30	30	___
Sub-total	–	90	90	90	–	–	90	–	90	90	90	90	180	900
Adjustment Time	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total Prsc. Time per Exercise (Seconds)	–	90	90	90	–	–	90	–	90	90	90	90	180	900
In Minutes/Seconds	–	1:30	1:30	1:30	–	–	1:30	–	1:30	1:30	1:30	1:30	3:00	15:00

[1]To determine prescription time for each factor:

(1) find prescription time multiplier by dividing total exercising time (900 seconds) by total raw score points below 7 (drop all decimals in the multiplier)

(2) multiply deviation points for each factor by the prescription time multiplier

(3) add adjustment time to the lowest factor, or divide between all factors with a score of 1

(4) total prescription time in seconds

(5) convert times to minutes and seconds

[2]Thomas M. Vodola, "The Effects of Participation Time Variations on the Development of Physical Fitness, Motor Skills & Attitudes," 1970, p. 150.

Exerting backward pressure on the extended leg and stretching the arm on the same side of the body forward decrease the concavity of the curve. (See Figure 4-1.) If the student does not exert equal pressure in each direction, it is doubtful that the problem will be remedied. Thus, the need for constant teacher supervision – to insure that each child performs his exercises properly. Similarly, the teacher has to observe constantly each child and modify the sequence of exercises (within prescriptive tolerances) to enhance pupil achievement and motivation.

Fig. 4-1. "C" Curve Exercise

Based on objective and subjective assessment of John, the following time prescription activities are recommended:

Factor	Task or Activity	Time
Shoulder level (4)	Unilateral Shoulders and Hips, Exercise 1	1:30
Spinal curvature (4)	Unilateral Shoulders and Hips, Exercise 2	1:30
Hip level (4)	Unilateral Shoulders and Hips, Exercise 1	1:30
Neck position (4)	Forward Head and Neck Exercise 3	1:30
Shoulder position (4)	Round Shoulders, Exercise 1	1:30
Upper back (4)	Round Shoulders, Exercise 2	1:30
Trunk position (4)	Flat Back, Exercise 1	1:30
Abdominal posture (4)	Hollow Lower Back, Exercise 1	1:30
Lower back position (1)	Hollow Lower Back, Exercises 2 and 5	3:00

(The activities recommended are detailed in Chapter VI, Resource Tasks and Activities.)

When implementing individual prescriptions, consideration should be given to the following sound teaching strategies:

1. Vary the student learning experiences for each factor so that the child develops a broad-based competency rather than competency in a few discrete skills.
2. Include tasks that are designed to ameliorate problems indicated by the subjective assessment.
3. Structure each task to insure success.
4. Include tasks that will reinforce pupil strengths.

6. Present Lectures and Demonstrations

Regardless of the time devoted to prescriptive tasks, success *will not* be achieved unless the pupil is constantly cognizant of, and applies, sound body mechanics in his daily pursuits. Thus, the instructor must make the student realize the values to be gained from proper body carriage. To achieve this important objective, the teacher must present motivational lectures, utilize appropriate audio visual materials, create role playing situations, and employ any other strategies necessary to impress upon the students the importance of constant application of sound principles of proper body mechanics.

7. Rescreen Students

The final role of the teacher is to reevaluate pupil progress at periodic intervals so that programs can be modified or recommendations can be made for a reexamination by the physician.

Teacher Learning Experiences

Up to this point, the teacher has been provided with step-by-step procedures for administering the modified New York Posture Screening Test, assessing the results objectively and subjectively, and implementing an individualized posture improvement program (based on the school or family physicians's recommendations). The following section provides the teacher with viable prescriptive learning experiences. (Answers to the problems are given in Appendix F, page 63.)

1. The student will assign raw scores based upon the 7-4-1 scale of the Modified New York Posture Rating Chart and arrive at a total composite score. (Enter scores on Figure 4-3.)

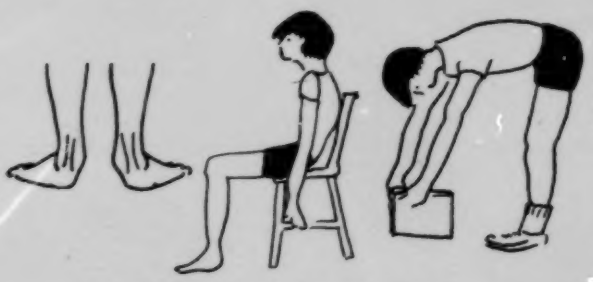
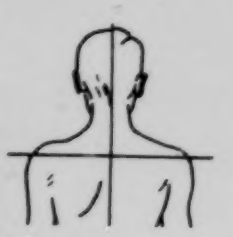
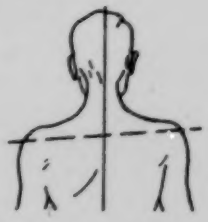


Fig. 4-2. Rating Dynamic Posture

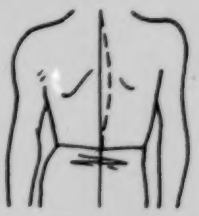
2. Given the illustrations in Figure 4-3, the teacher will verbally describe the individual's possible postural abnormalities.
   Static Posture _____
   _____
   Dynamic posture: _____
   _____
   Walking: _____
   _____
   Sitting and rising: _____
   _____
   Lifting and setting down object: _____
3. Using the raw data provided in #1, the teacher will plot an individualized posture profile on Table 4-3.
4. Using the raw data provided in #1, the teacher will determine the subject's individualized time prescription using Table 4-4 on page 24.



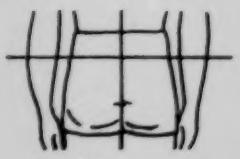
1. _____



2. _____



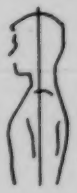
3. _____



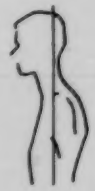
4. _____

5. _____

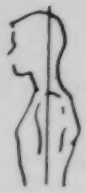
6. _____



7. _____



8. _____



9. _____

10. _____

11. _____

12. _____

13. _____

Total Composite Score = _____

Fig. 4-3. Rating Static Posture

TABLE 4-3

POSTURE PROGRESS PROFILE (Courtesy of the Township of Ocean School District.)

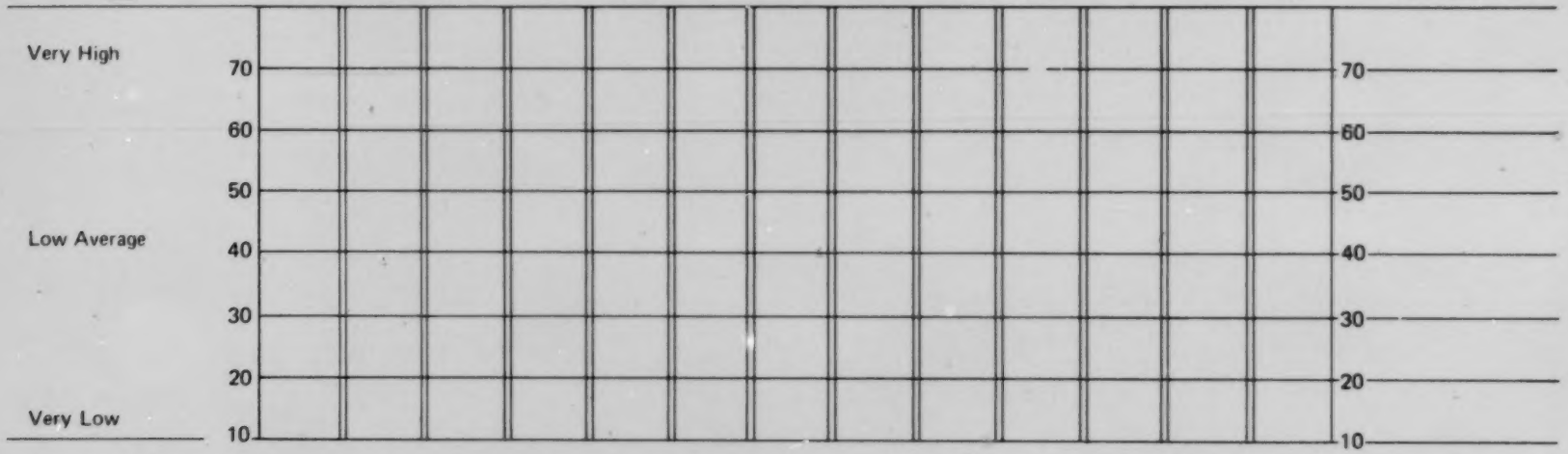
Student's Name _____ Age _____ Classification _____ School _____

Symbols — COMPONENT MEASURED

1st Test ■

2nd Test ▦

Score Regression Standard Score ▨



Anecdotal Remarks:

Static Posture:

Dynamic Posture:

Walking:

Sitting/rising:

Lifting/setting object down:

Asthmatic (Vital Capacity)	_____	_____
Weight Control (Pounds)	_____	_____
Orthopedic (See Anecdotal Remarks)	_____	_____
Physical Fitness Test	_____	_____
Motor Ability Test	_____	_____

TABLE 4-4

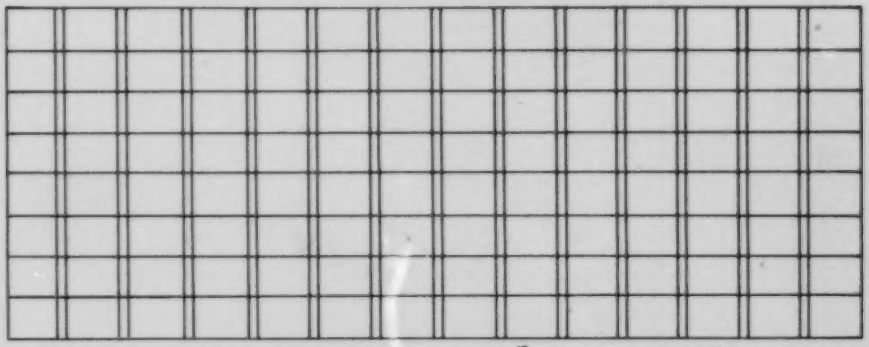
POSTURE TIME PRESCRIPTION CHART[1, 2]

Total Deviation Points Below 7 ____

Total Exercise Time 900

Prescription Time Multiplier ____

Adjustment Time _____



	Head	Shoulder Level	Spine	Hips	Feet	Arches	Neck	Chest	Shoulders Centered	Upper Back	Trunk	Abdomen	Lower Back	Totals
Deviation Points Below 7														
Prescription Time Multiplier														
Sub-total														
Adjustment Time														
Total Prsc. Time per Exercise (Seconds)														
In Minutes/Seconds														

[1]To determine prescription time for each factor:

(1) find prescription time multiplier by dividing total exercising time (900 seconds) by total raw score points below 7 (drop all decimals in the multiplier)

(2) multiply deviation points for each factor by the prescription time multiplier

(3) add adjustment time to the lowest factor, or divide between all factors with a score of 1

(4) total prescription time in seconds

(5) convert times to minutes and seconds

[2]Thomas M. Vodola, "The Effects of Participation Time Variations on the Development of Physical Fitness, Motor Skills & Attitudes," 1970, p. 150.

5. Given the information provided in numbers 1-4, the teacher will prescribe appropriate tasks and activities, on the assumption that the aforementioned data has been approved by the school or family physician. Place an asterisk (*) adjacent to those tasks prescribed in accordance with the "Anecdotal Remarks" recorded in #2. Refer to Chapter VI for the selection of necessary tasks. (Identify by category and exercise number.)

Factor	Task/Activity	Time
Head position		
Shoulder level		
Spinal curvature		
Hip level		
Foot alignment		
Arches		
Neck position		
Chest elevation		
Shoulder position		
Upper back		
Trunk position		
Abdominal posture		
Lower back		

6. The teacher will:
   a. list the explanation for the following measurements; and
   b. cite the appropriate anatomical landmarks for each.

Leg Length

Left: 24" Right: 25½"

a. Explanation: _____

_____

_____

_____

b. Anatomical landmarks:

(1) _____

(2) _____

Scapula Displacement

Left: 3/4" Right: 2"

a. Explanation: _____

_____

_____

_____

b. Anatomical landmarks:

(1) _____

(2) _____

Shoulder Level

a. Explanation: _____

_____

_____

b. Anatomical landmarks:

(1) _____

Hip Level

a. Explanation: _____

_____

_____

b. Anatomical landmarks:

(1) _____

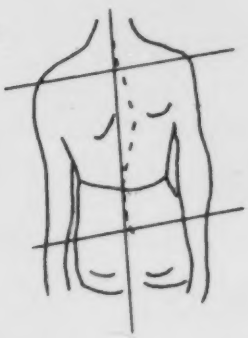
7. Given the information below, the teacher will:
   a. list whether the potential scoliotic problem is a "C" curve or an "S" curve;
   b. draw an illustration of each curvature.

Subject A

Dropped left shoulder
Dropped left hip

Subject A

Type of curvature: _____

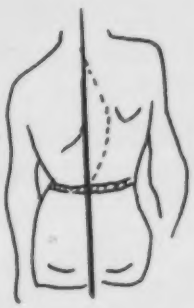


Subject B

Dropped left shoulder
Raised left hip

Subject B

Type of curvature: _____



PROGRAM IMPLEMENTATION

In addition to the TAPE procedure discussed in this manual, many other factors enter in the implementation of a successful individualized program. For example, "What is the role of the teacher in this highly structured environment?" "How can one motivate a student whose tasks are distasteful because he cannot achieve and is constantly frustrated?" "Does the learning environment have to be restructured?" "What other factors must be considered to enhance program success?" These and other questions are considered in the remaining pages of this chapter.

The Role of the Teacher

To individualize instruction, the teacher must modify his teaching style so that he becomes a "partner" in the educational process. Instead of devoting the instructional time to lecturing and "telling" the students what to do, he must guide, assist, stimulate, motivate, and act as a resource person. He must, in fact, make the student the "center" of the learning process. Instead of answering questions, the teacher skillfully guides the student through a series of questions so that he inductively arrives at the solution to his problem. Further, the teacher does not provide experiences which result in rote learning. All tasks and activities are designed to develop the child's ability to comprehend, apply knowledge previously learned, analyze problems, synthesize information, and inarrive at solutions.

Strategies to Motivate Students

Assuming that all of the strategies listed above have been incorporated, will the students be motivated? Not necessarily. Consideration must also be given to "personalizing" instruction and providing "student learning experiences."

The terms "individualized instruction" and "personalized instruction" are not synonomous. As mentioned in Chapter I, the Project ACTIVE Training Program defines "individualized" in terms of the TAPE process – the focus is on instruction. "Personalized," on the other hand, relates to teacher-pupil rapport – the focus is on the human element. Many highly innovative, individualized programs may have failed because they virtually eliminated the personalization factor. Thus, it is recommended that throughout the posture program unit, the teacher constantly recognize each child as a human being with whom he must constantly strive to enhance his relations. Some techniques recommended to enhance personalization of instruction are:

1. Refer to each pupil by his or her first name.
2. Look for opportunities to reinforce immediately tasks performed reasonably well.
3. Structure all tasks so that every child can achieve a degree of success.
4. Empathize with each child in his performance and behavior.
5. Provide opportunities for each child to perform the tasks he or she enjoys.
6. Structure all experiences so that the child is maximally involved.

Student Learning Experiences

The provision of student learning experiences is an important tool in motivating students and enhancing the learning process by creating the proper learning environment necessary for "internalizing" concepts. Herewith are presented four tasks which can aid the child in internalizing several facets of the posture program.

1. Screen Posture of Partner, Grades 7-12

Teacher's Role

a. Set-up the screening station (provide posture grid, disinfectant, foot basin, chair and object to be picked up).
b. Explain and demonstrate the rating technique.
c. Pair students and distribute New York Posture Screening Forms, pencils and watercolor marking pens.
d. Assist and guide students in the assessment process.

Student's Role

a. Rate his partner's posture (7-4-1 basis). Record his partner's composite score. Circle a composite score of 70 or below, or any item score of 1.
b. Measure his partner's leg lengths.
c. Measure his partner's scapulae displacement from the vertebral column.
d. Assess the partner's dynamic posture.
e. Record all scores and measurements and comments. Circle a composite score of 70 or below, or any item score of 1.
f. Review the posture appraisal with his partner and the teacher.

Note: Students appraised as revealing possible postural abnormalities are to be referred to the family or school physician for examination.

2. Select a Prescription of Exercises, Grades 9-12

Teacher's Role

a. Review and approve posture ratings of students, or provide prescriptive recommendations of the medical inspector.
b. Provide a list of exercises for common postural problems that have been approved by the medical inspector. (Refer to Chapter VI.)

Student's Role

a. Select his exercises from the approved list in accordance with the guidelines established.

3. Perform Exercises Designed to Improve or "Arrest" the Identified Problems, Grades 3-12

Teacher's Role

a. Assist the student to be sure he is performing his exercises properly.
b. Pose inductive questions (i.e., ask specific questions designed to aid the student in making valid generalizations).
c. Stress the importance of proper body mechanics at all times.

Student's Role

a. Perform exercises based on personal prescription (Grades 9-12) and on teacher's prescription (Grades 3-8).
b. Perform the same exercises at home (on those days that he does not have D&A).
c. Be constantly aware of proper body carriage in all daily pursuits.
d. Submit a one-page written report on "The Importance of Proper Body Mechanics."

4. Design and Implement a School Posture Contest, Grades 7-12

Teacher's Role

a. Furnish suggestions and resource materials regarding programs in other schools.
b. Assist and guide in all steps of the planning.

Student's Role (In Cooperation with his Classmates)

a. Plan the entire program with student participants, judges, assembly time, etc.
b. Prepare a bulletin board display.
c. Write an article for the school and town newspapers.
d. Develop a newsletter for release to the community.

Structuring the Learning Environment

Establishing a program to meet the varied needs of any group of students requires the restructuring of the traditional gymnasium or classroom setting. It is recommended that several mini-instructional centers be set up within the gymnasium or classroom. (See Figure 4-3 for an example.) This affords the teacher flexibility in programming whereby he can prescribe individualized and/or group activities within the same environment.

Other Factors to be Considered

Record-keeping poses a problem for the teacher. It is recommended that the teacher prepare an individual folder for each child in which are filed all test forms. Further, to minimize prescriptive error, some form should be devised so that tasks, time duration, attendance, and anecdotal remarks can be recorded on a daily basis. The Individual Participation Card (Table 4-5) provides one form that can be used for record-keeping. The reverse side of the 5 x 8 card may be kept blank, for entering anecdotal remarks. Other considerations would include teacher-pupil ratio (1-10), size of the teaching station (30' x 60'), supply and equipment needs (see Appendix G), and time allotment for the program (a minimum of two 30-minute periods per week).

Sample Lesson Plan

John Doe is enrolled in an adapted physical education class. He is scheduled for a thirty-minute class period on Tuesdays and Thursdays, in addition to his regular physical education program. The period is structured so that John receives fifteen minutes of individualized instruction based on his time prescription and fifteen minutes applied to selected daily life tasks. A copy of John's program is presented below:

Period 1 — 30 minutes	**Tuesday/Thursday**
Individual Activity	**Time Prescription**
Neck and Shoulder position	3 minutes
Lower Back and Abdominal	3 minutes
Chest Elevation	3 minutes
Head Position	3 minutes
Feet Alignment	3 minutes
Total Time:	15 minutes

Daily Life Tasks[1]

Sitting and Rising from a Seated Position	8 minutes
Squatting	
Lifting Heavy Objects	
Pushing and Pulling Heavy Objects	
Carrying Weights	
Handling an Object Overhead	
Operation of Long-Handled Implements	
Working with Small Implements at a Table or Desk	
Falling	2 minutes
Climbing and Descending Stairs	
Walking	5 minutes
Running	

The daily life tasks should be selected so that they relate to the problems manifested in the screening. It is also important to vary the student experiences periodically so that he is exposed to all of the tasks.

SUMMARY

The implementation of an individualized instructional program to ameliorate posture abnormalities requires a close working relationship between the physical educator, the school nurse, the school physician and the family physician. The following suggestions will aid the teacher in attaining that goal:[2]

[1] W.C. Adams, et.al., *Foundations of Physical Activity*, pp. 41-46.

[2] Thomas M. Vodola, *Individualized Physical Education Program for the Handicapped Child*, paraphrased from pages 172-175.

Fig. 4-3. Mini-Teaching Stations

TABLE 4-5

INDIVIDUAL PARTICIPATION CARD (Courtesy of the Township of Ocean School District.)

NAME _____ DAY____PERIOD____INSTRUCTOR_____ SCHOOL _____

PHYSICAL FITNESS	SCORING	PARTICIPATION SCORES
Push-ups	Reps.	
Pull-ups	Reps.	
Sit-ups	Reps.	
Static Arm Hang	Seconds	
Rope Skip (1 Minute)	Reps	
POSTURE EXERCISES	DATES	
Bridging (Kyphosis)	Reps.	
Ladder Swing (Scoliosis)	Reps.	
Lateral Stretch (Scoliosis)	Reps. R.L.	
Knee Squeezes (Lordosis)		
ASTHMATIC SERIES	SETS	
WEIGHT CONTROL EXERCISES	DATES	
Jumping Jacks (100)	Sets	
Hop Both Feet (100)	Sets	
Hop Right Foot (100)	Sets	
Hop Left Foot (100)	Sets	
Run in Place (100)	Sets	

CLASSIFICATION_____

Posture Tests _____ _____ _____ Vital Capacity _____ _____ _____ Weight _____

REMARKS _____

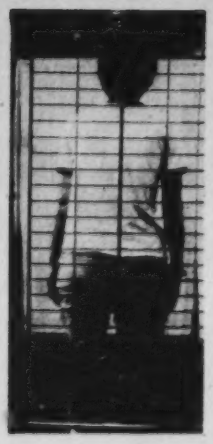
NOTE: Suggested exercises for medical problems are subject to approval of the medical inspector.

1. Select a series of valid exercises, mimeograph, and submit for approval to the school physician.
2. Design a Posture Examination Form that coincides with the mimeographed material in terms of major headings.
3. Mimeograph the forms and forward them to the school nurse so that she has them available for the school or family physician.
4. Forward a list of students with suspected problems to the school nurse. Include a packet of posture forms.
5. Nurse will have the students examined by the physician. If prescriptive exercises are needed, the physician will check the appropriate categories on the prescription form and sign it.
6. If the problem is of a serious nature, the school nurse informs the parents to take their child to their family physician.
7. If the abnormality is less serious, the child is scheduled for Developmental and Adapted Physical Education; the teacher refers to the approved, mimeographed exercises and establishes a program for the child.
8. When referral has been made to the family physician, the student is not scheduled until approval is granted and exercises are prescribed. Prior to his examination by the doctor, the student is given the form and prescriptive exercises for the physician's consideration.

Selection of Prescriptive Tasks and Activities

1. Individual prescriptions are based on the severity of the problem(s).
2. Simplified prescriptive method:
   a. Severe abnormality – two exercises
   b. Minor abnormality – one exercise
3. Sophisticated prescriptive method:
   a. Individual time prescriptions based on objective and subjective appraisal.
4. Students are also made aware of correct dynamic posture and are urged to strive constantly to maintain proper body segmental alignment during all daily activities.

TAPE EVALUATION PROCEDURES



CHAPTER FIVE

TAPE EVALUATION PROCEDURES

Previous chapters have focused on gathering baseline information, assessing performance and prescribing activities. Chapter V is devoted to evaluating student progress at the end of a specific block of time so that a decision can be made regarding subsequent programming. (It should be noted that the term "assessment" implies the constant gathering of "process" information so that the prescription can be modified as needed. On the other hand, "evaluation" is viewed as the gathering of "product" (terminal) information so that an administrative decision can be made.)

The first section of Chapter V provides suggested guidelines for ascertaining whether a student should: (1) be returned to unrestricted program; (2) continue in the Adapted Program with the same prescription; (3) continued in the Adapted Program with a modified prescription; or (4) be scheduled in the unrestricted program and the Adapted Program. Other sections deal with a procedure for informing parents of their child's progress and provide a summary of the TAPE process based on an actual case study.

Suggested Evaluative Guidelines[1]

To evaluate pupil progress properly, it is necessary to review all data collected. The evaluation should be conducted every nine weeks. At each terminal period, the teacher should:

1. Re-administer the New York Posture Screening Test
2. Compute the subject's composite score
3. Record anecdotal remarks regarding process changes
4. Compare the pre- and post-test objectives and subjective appraisals

If the student achieves a posture score of 85 or above, with no single score of less than 4, he should be referred to the school or family physician for reexamination (and possible release from the program). If these minimal standards are not achieved, further evaluation is necessary. Attempt to discern whether the lack of improvement was attributable to improper prescription. If this is the case, determine why the prescriptive tasks did not improve performance. Were the tasks too easy, too difficult, not performed correctly, or not practiced sufficiently? Re-prescribe to correct the problem. If the problem is attributable to poor motivation, prescribe other tasks which focus on the same factors, but may be more appealing to the student. (See Chapter VI for sequential tasks.) Other approaches to solving the motivation problem: make the tasks more meaningful by having students test one another; record their daily progress; or use any other comparable strategy which enables the pupils to note concretely the benefits derived.

If the student has not achieved the appropriate posture score, but shows steady progress toward his goal, the teacher may elect to continue the present prescriptive program for another nine weeks. This decision should be

[1]The teacher should always recognize the fact that evaluation is a continuous process; consequently, it cannot be restricted to a precise testing schedule. It might be advisable to retest a student prior to the pre-planned schedule because of his performance. An interim evaluation insures that the individual prescription process is being implemented to the fullest extent.

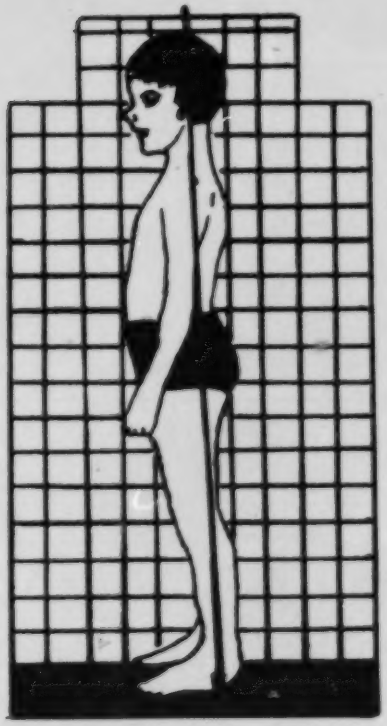
based on all data available on the student such as: (1) personal and medical history; (2) the teacher's subjective observations; and (3) the student's rate of improvement in specific component areas. However, under no circumstances should the student be released from the D&A Program until the medical examiner so indicates in the child's medical folder. (Note: Wherever possible, it is recommended that students with postural abnormalities be permitted to take part in the unrestricted physical activity program during the time they are in the D&A Program. Only in those situations when the medical inspector deems the activity inappropriate, should they be excluded.)

Pupil Progress Report to Parents

It is important that parents be made aware of the progress of their child in the Adapted Physical Education Program. Table 5-1 provides a suggested format for reporting to parents. The form provides a means of indicating the progress the child makes in terms of each test item and each factor. Provision is also made for parental comments and requests for a conference.

TABLE 5-1

POSTURE REPORT CARD



PUPIL John Doe

GRADE _____ YEAR ____

D&A TEACHER Mr. Thomas Pagano

TEACHER COMMENTS:

Your child has been examined by the school and your family physician and has been referred to the Adapted Physical Education Program for specific posture exercises. The chart on the reverse side of this report presents objective and subjective information based on the physicians' examinations.

At the termination of a nine-week period your child will be retested, the school physician will be apprised of his progress, and the report will be forwarded for your review.

PARENTAL COMMENTS

PARENTAL SIGNATURE _____

PARENT WISHES CONFERENCE YES ☐

NO ☐

TABLE 5-1 (Continued)

Posture Items	Highest Possible Score	Your Child's Score		
		Test 1	Test 2	Test 3
Objective Evaluation				
1. Head Position	7	4	7	
2. Shoulder Level	7	4	4	
3. Spine Alignment	7	4	4	
4. Hip Level	7	4	4	
5. Feet Alignment	7	1	4	
6. Arches	7	7	7	
7. Neck Position	7	4	4	
8. Chest Elevation	7	7	7	
9. Shoulder Position	7	4	7	
10. Upper Back Position	7	4	7	
11. Trunk Position	7	7	7	
12. Abdomen Position	7	7	7	
13. Lower Back Position	7	7	7	
Constant Score (add 9)	9	9	9	
Total	100	73	85	
Subjective Evaluation				
1. Walking	Correct body alignment	Slouched position	Improved	
2. Sitting/Rising	Correct sitting/ rising posture	Slouched position	Correct technique	
3. Lifting/Setting Object Down	Proper knee bend	Lifts with back	Correct technique	

Summary of the TAPE Process

The sequence the teacher uses for individualizing instruction involves:

T – Testing the student to gather baseline data
A – Assessing the individual performance of the student
P – Prescribing a sequentially developed program of individualized activities (based on the recommendations of the family or school physician)
E – Evaluating the progress of the student at periodic intervals

Case Study

The physical education teacher noted that John tended to perform his physical skills in a slouched body position. Further, the student's endurance was minimal and he always seemed fatigued. Subsequent posture screening revealed a score of 73 with a raw score of "1" for feet alignment. Subjective appraisal indicated a general weakness in the anti-gravity muscles of the body and poor body mechanic patterns. The follow-up examination by the physician substantiated the screening results and upon parental approval, John was scheduled in the Adapted Program for two periods per week.[1] Table 5-1 reveals the gains made by John during the 9 weeks he was in the program.

Hopefully, John's case study provides a synthesis of the individualization of a posture program via the TAPE process. The process involves: testing; assessing performance; D&A program enrollment, when necessary; prescribing tasks and activities; evaluating performance periodically; and modifying subsequent strategies in light of the evaluative results.

[1] John's physical education teacher was also advised of his prescriptive needs so that he could also practice his posture exercises during the regular physical education pre-activity periods (10 minutes per day). Thus, John was receiving individualized instruction 5 days per week.

RESOURCE TASKS AND ACTIVITIES

CHAPTER SIX

RESOURCE TASKS AND ACTIVITIES

The exercises and activities in this chapter are structured to provide a cluster of student learning experiences that will improve those factors listed in the Physicians's Posture Examination Form (Table 4-1 on page 19). Upon examining a student, the physician checks the appropriate categories and lists the exercises recommended. When the teacher receives the form, he need only refer to the appropriate section of this chapter for suggested exercises that can be submitted to the physician for approval.[1]

Although the exercises have been grouped for each factor, (e.g., Forward Head,) they should be used with discretion because the unique needs of each learner may necessitate modifications. When such changes are anticipated, the physician should be contacted for his approval. The overriding concern of the educator is to *select and prescribe those exercises that will enable each individual to achieve success.*

POSTURAL FACTORS

[1] It is recommended that the Posture Examination Form and exercises for each respective category be approved by the family and school physicians prior to program implementation. The advantages of such a procedure are two-fold: (1) the physician need not repetitiously prescribe exercises for each child examined; and (2) the D&A teacher need only refer to the categories checked and select exercises accordingly.

FORWARD HEAD AND NECK[1]

EXERCISES FOR STRENGTHENING THE POSTERIOR NECK MUSCLES

Objectives:

- To remove the cause(s) of the deviations.
- To teach the correct position of the head and neck.
- To strengthen the muscles of the posterior cervical region.

Exercise 1. NAME: Neck Cruncher
Equipment: Mats
Description: Prone lying position on the mat, with the fingers behind the head, and the face and elbows two or three inches above the floor.

- The head is held in place while the hands push downward on the back of the head.
- The head is not to be lifted or permitted to lower.
- Duration is several seconds.
- Repeat vigorously several times in accordance with the stage of development of each individual, with reason able rest between repetitions.

Fig. 1 Neck Cruncher

The posterior neck muscles are strengthened as the head resists the downward pressure of the hands.

Common Faults:
- Tilting the head backward and the chin upward.
- Raising the head more than two or three inches above the floor.
- Exerting too little pressure with the hands on the back of the head.

Exercise 2. NAME: Neck Resistance, Partner
Equipment: Mats
Description: Starting position: The same as above except that the straight arms are held close to the sides of the body.

Fig. 2 Neck Resistance, Partner

The assistant applies pressure on the back of the head as the person holds his head in place.

- The position is maintained while the teacher or an assistant pushes downward on the head.
- Repeat slowly several times in accordance with the stage of development of each individual.

Common Faults:
- Same as above.

Exercise 3. NAME: Neck Resistance, Board or Towel
Equipment: A Board or Towel and Chair
Description: Starting position: Correct sitting position on a chair, with buttocks and back against the back of the chair throughout the exercise.

- The back of the chair must reach a point at least halfway up the scapulae and not higher than the tops of the shoulders.
- The person holds the board with both hands against the back of the head.
- Press the head forcefully backward against the board while pulling the board forward vigorously.
- Some backward movement of the head without tilting it upward or downward is permissible provided strong resistance by the board is maintained.
- Hold this position for several seconds.
- Repeat several times in accordance with the stage of development of each individual, with reasonable rest between repititions.

Fig. 3 Neck Resistance, Board or Towel

The head resists the forward pressure of the board.

Common Faults:
- Permitting the head to move forward.
- Tilting the head backward and the chin upward.
- Providing too little pressure with the board.
- Arching the lumbar spine.
- Permitting the buttocks to slide away from contact with the back of the chair.

[1]Exercises adapted from Grover W. Mueller and Josephine Christaldi, *A Practical Program of Remedial Physical Education*, pp. 146-148. Reprinted with the permission of Lea and Febiger.

ROUND UPPER BACK[1]

ROUND SHOULDERS

EXERCISES FOR SUPPLING THE ANTERIOR THORACIC TISSUES

Objectives:

- To remove the cause(s) of the deviation.
- To produce normal length of the adductors and internal rotators of the arms.
- To increase the suppleness of the shoulder girdle.

Exercise 1. NAME: Chest Stretch, Wall
Equipment: None
Description: Starting position: Correct standing position several inches from and facing a corner of a room at a distance depending upon the conformation of the individual, with hands shoulder high on the wall slightly farther apart than shoulder width, and the fingers of both hands pointing toward the corner, the feet parallel and a few inches apart.

- Force the trunk slowly toward the corner with the chest leading, the elbows being held shoulder high.
- Hold this position for several seconds.
- Repeat slowly several times in accordance with the stage of development of each individual, with reasonable rest between repetitions.

Fig. 1 Chest Stretch, Wall

Force the chest into the corner to stretch the anterior thoracic tissues.

Common Faults:
- Heels lifted from the floor.
- Hips sagged forward.
- Head tilted forward or backward.
- Doing the exercise too rapidly.
- Failure to force the chest forward far enough.

[1]Exercises 1, 2 and 3 adapted from Mueller and Christaldi (Exercises 2, 5, 7 on pages 133-138) with the permission of Lea and Febiger.

Exercise 2. NAME: Chest Stretch, Partner
Equipment: A Bench
Description: Starting position: Correct sitting position on a backless bench with the head erect, the fingers behind the neck, the feet parallel and flat on the floor. The teacher or another assistant stands behind the person with one foot on the bench and a flexed knee in contact with the middle of the dorsal spine. The assistant has his hands on the front surface of the person's arms near the elbows.

- The assistant slowly pulls the person's elbows backward and slightly upward as he contracts the shoulder retractor muscles.
- The end position is held for several seconds.
- Repeat slowly several times in accordance with the stage of development of each individual.

Note: The person must be instructed to say "STOP", if he feels more than slight pain.

Fig. 2 Chest Stretch, Partner

Assistant slowly pulls individual's elbows backward.

Common Faults:
- Tilting or moving the head forward.
- Jerking of the arms backward by the assistant.
- Performing the exercise too fast.
- Arching the lumbar spine.
- Forcing of the arms too far backward by the assistant in relation to the person's tissue flexibility.

Exercise 3. NAME: Chest Stretch, Low Parallel Bars
Equipment: Two Benches or Low Parallel Bar
Description: Starting position: Support-lying position, with the hands placed on the tops of the benches, or on the bars, and the feet on the floor.

- Lower the straight body downward, forcing the chest below the benches or bars, and hold for several seconds.
- Repeat several times in accordance with the stage of development of each individual.

Note: Weaker individuals should return to the starting position before repeating the exercise by first placing the knees on the floor.

Common Faults:
- Insufficient lowering of the chest.
- Allowing one or both legs to touch or rest on the floor during the chest lowering.
- Having the benches too close together or too far apart.

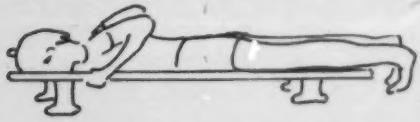


Fig. 3. Chest Stretch, Low Parallel Bars

Chest lowering below parallel bars to stretch anterior thoracic tissue.

Exercise 4. NAME: Rowing
Equipment: Mats
Description: Have students sit on mats, with legs extended. Upon command, the student:

- Bends forward and places hands along ankles as if holuing oars.
- Pulls back on oars, bending arms and bringing hands to chest.

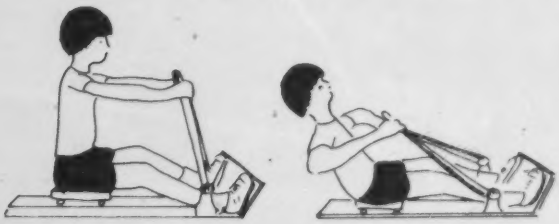


Fig. 4. Rowing

Teaching Hints:
- Teacher keeps cadence, i.e., Pull, Pull, etc.
- Pause during each contraction phase and encourage pupils to keep heads in line with body and to try to touch scapula together.

Exercise 5. NAME: Reverse Wall Push-ups
Equipment: None
Description: The student stands with his back to a wall, with his feet approximately 6" from the wall. On command, the student:
- Places his palms flat against the wall, thumbs pointed toward his ears.
- Pushes and extends his arms until they are straight.
- Returns to the starting position.
- Repeats the exercise.

Teaching Hints:
- Increasing the width of hand placement will increase the suppleness of the shoulder girdle.
- Have students perform the task slowly to derive maximum stretching benefits.

Fig. 5. Reverse Wall Push-Ups

Exercise 6. NAME: Swimming, Breast Stroke
Equipment: Pillows, or Small Cushions and Mats
Description: The student lies in a prone position with the pillow under his abdomen. On command, he:
- Rotates his arms outward, with palms facing upward as they move backward
- Repeats the exercise 10-20 times

Fig. 6. Swimming, Breast Stroke

Teaching Hints:
- Stress keeping chin tucked in – in line with the body.
- Increase the size of the circles to place greater stress on the pectoral muscles.

Exercise 7. NAME: Active Stretching
Equipment: Cushions or Pads, Mats and Weights
Description: Student assumes supine position on a mat, with pad under shoulder blades. Feet are placed flat on the mat, with knees flexed to insure lower back touching the mat. On command, the student:

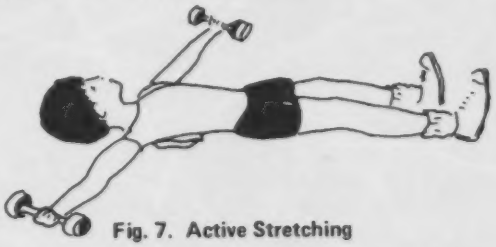


Fig. 7. Active Stretching

- Grasps a weight, dumbbell, or both in each hand.
- Raises extended arms and touches objects together.

- Lowers extended arms and touches mat.
- Repeats the exercise.

Teaching Hints:
- Increasing the height of the cushion will increase the stretch on the chest muscles.
- Emphasize keeping arms extended, lower back in contact with the mat, and moving the objects through the complete range of motion.

Exercise 8. NAME: Door Squeezing
Equipment: Open Door or Narrow Upright
Description: The student stands with back against thin edge of open door. On command, he:
- Clenches fists, bends elbows and raises them to shoulder level.
- Moves arms and shoulders rearward endeavoring to squeeze the door edge between the shoulder blades.
- Relaxes
- Repeats the task

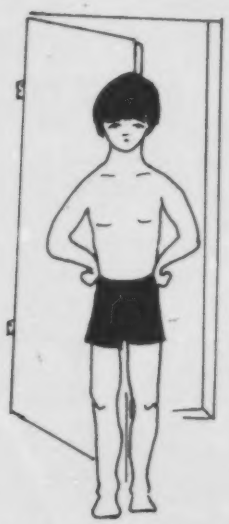


Fig. 8. Door Squeezing

Teaching Hints:
- Have the task performed slowly with emphasis on the "squeezing" phase.
- Have students work in pairs with one student placing his hand between his partner's shoulder blades.

Exercise 9. NAME: Back Wall Curl
Equipment: None
Description: The student stands in the upright position, with back to wall and heels 3-4" away. On command, he:
- Relaxes and bends forward slowly.
- Gradually returns to the erect position, one vertebra at a time until the entire back is pressed against the wall.
- Repeats the exercise.

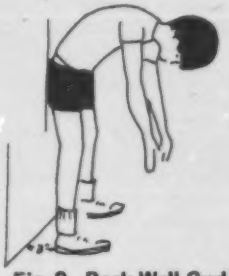


Fig. 9. Back Wall Curl

Teaching Hints:
- Emphasize eliminating all spaces between the back and wall and retracting shoulder blades when in the upright position.

Exercise 10. NAME: Shoulder Stretch
Equipment: None
Description: Have student kneel Japanese style. On command, the student:
- Bends forward and extends arms rearward.
- Slides head forward and attempts to place his chin or chest on the floor. (Keeps inching hands out away from the body.)
- Holds position for one minute.
- Slowly returns to the sitting position and relaxes.
- Repeats the exercise.

Fig. 10. Shoulder Stretch

Teaching Hints:
- Have the student stabilize his upper torso by keeping his buttocks in contact with his heels at all times.
- Vary the task by having the student extend his arms to the sides.

UNILATERAL SHOULDERS AND HIPS/SCOLIOSIS[1]

All of the exercises are designed to increase the flexibility of the spine. They are to be given only upon specific approval by a physician.
Objectives:
- To remove the cause(s) of scoliosis, where possible.
- To maintain spinal flexibility.
- To improve the general posture of the person by giving instruction in correct body alignment and mechanics.
- To encourage the person to observe his posture frequently by use of a mirror.

[1]Exercises adapted from Mueller and Christaldi (Exercises 5, 7, 9, 12 and 13 on pages 152-159) with the permission of Lea and Febiger.

Exercise 1. NAME: Trunk Bending Sideward, Kneeling
Equipment: None
Description: Starting position: Kneeling position on right knee, straight left leg extended directly sideward, straight right arm vertically upward, palm of left hand placed on ribs just below armpit.

- Bob trunk three times to left side (over extended leg) keeping arms, head, and trunk in good alignment.
- Return to starting position.
- Repeat several times in accordance with the stage of development of each individual.

Fig. 1 Trunk Bending Sideward, Kneeling

Trunk Bending Sideward in a Kneeling Position.

Common Faults:
- Not keeping head and trunk in good alignment.
- Insufficiently vigorous sideward bending.

Exercise 2. NAME: Trunk Bending Sideward, Standing
Equipment: None
Description: Starting position: In a stand with the feet 3 or 4 inches apart, with the right arm curved overhead, and the left arm across the rear of the body at waist level.

- Bend the trunk gradually and rhythmically to the left.
- Vigorously force the right arm overhead and the left arm across the back as levers to insure trunk bending as far as possible.
- Return to the starting position.
- Repeat to the opposite side.
- Repeat several times in accordance with the stage of development of each individual.

Fig. 2 Trunk Bending Sideward, Standing

Trunk Bending rhythmically

Common Faults:
- Lifting the right heel from the floor when bending left, or the reverse.
- Flexing the left knee when bending left, or the reverse.
- Twisting the body to the left when bending to the left, or the reverse.
- Exerting insufficient effort when performing the exercise.

Exercise 3. NAME: Stall Bar Hang
Equipment: Stall Bars or Horizontal Ladder, or Rings
Description: Starting position: Straight hang from the upper outer rung of the stall bars, from a horizontal ladder, or from the rings.

- Stretch the body downward as if attempting to touch the toes to the floor.
- Return.
- Repeat several times with reasonable rest between repetitions.

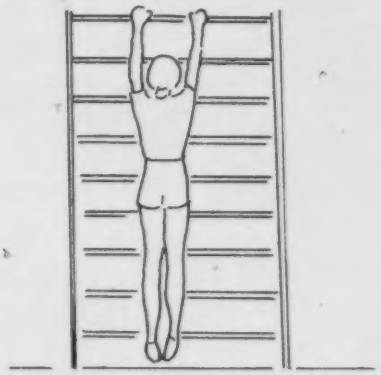


Fig. 3 Stall Bar Hang

Active hanging on the stall bars.

Common Faults:
- Permitting the head to move forward.
- Exerting insufficient effort when performing the exercise.

Exercise 4. NAME: Stall Bar Travel
Equipment: Horizontal Ladder and Mats.
Description: Starting position: Jump to side-hang frontways on beam using overhand grip.

- Travel sideward to opposite end of ladder moving one hand after the other in small "steps".
- Swing the body and legs from side to side from shoulders and hips.
- Halt movement and dismount.
- When person is sufficiently strong, he may return to starting point by traveling sideward.

Common Faults:
- Not involving enough movement in the spine.
- Not maintaining a rhythmical swing.
- Permitting the legs and feet to separate.

Fig. 4 Stall Bar Travel

Traveling sideward on the beam of the horizontal ladder to supple the spinal column.

Exercise 5. NAME: Stall Bar Swing
Equipment: Horizontal Ladder and Mats
Description: Starting position: Jump to side-hang between beams.

- Grasp first rung with left hand and third rung with right hand, palms facing toward each other.
- Swing legs vigorously from hips from side to side.
- Halt and dismount.

Common Faults:
- Not involving enough movement in the spine.
- Not maintaining a rhythmical swing.
- Permitting the legs and feet to separate.

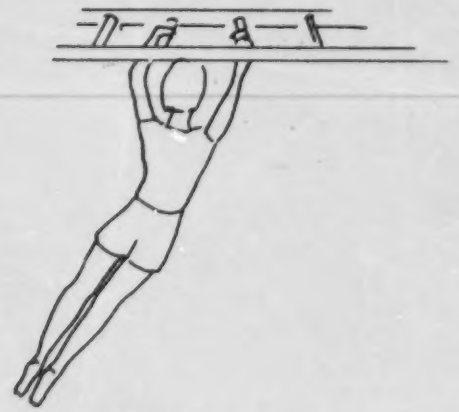


Fig. 5 Stall Bar Swing

Swing body and legs from side to side to increase the flexibility of the spine.

FORWARD PELVIC TILT AND FLAT BACK[1]

FLAT BACK

Exercises for Strengthening the Back Extensor Muscles in the Lumbar Area.

Objectives:
- To develop a natural concavity in the lumbar spine.
- To correct the position of the pelvis.
- To strengthen the erector spinae muscles in the lumbar region.
- To supple the hamstrings if they are shortened.

Exercise 1. NAME: Lumbar Exerciser, Knees Flexed
Equipment: Mats
Description: Starting position: Hook lying position with the fingers behind the neck.

- Hyperextend (arch) the lumbar spine.
- Hold the position for several seconds.
- Relax.
- Repeat several times.

Fig. 1 Lumbar Exerciser, Knees Flexed

Hyperextension of the lumbar spine is an exercise exercise to correct flat back.

Common Faults:
- Not hyper extending the lumbar spine sufficiently.

Exercise 2. NAME: Lumbar Exerciser, Prone Position
Equipment: Mats
Description: Starting position: Prone lying position on the floor, with the straight arms extended overhead on the floor.

- Raise the trunk, the arms, and the straight legs upward.
- Hold for several seconds.
- Lower trunk, arms, and legs.
- Repeat the exercise several times.

Fig. 2. Lumbar Exerciser, Prone Position

Raise the trunk, arms, and legs upward.

Common Faults:
- Not raising the trunk and legs sufficiently high.
- Bending the knees.

[1]Exercises adapted from Mueller and Christaldi (Exercises 2, 5, and 7 on pp. 131-132) with the permission of Lea and Febiger.

Exercise 3. NAME: Lumbar Exerciser, Bench
Equipment: Bench or Stool and Stall Bars
Description: Starting position: Prone lying position, with the thighs supporting the body weight on a bench or a stool, the feet placed at bench height on the stall bars, and the hands resting on the floor to support the weight of the bent trunk.

- Place the fingers behind the neck as the trunk is raised as high as possible (hyper extended).
- The chin is drawn in and the neck is in line with the trunk.
- Hold the position for several seconds.
- Return to the starting position.
- Repeat slowly several times in accordance with the stage of development of each individual.

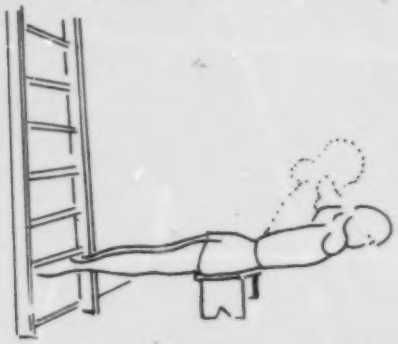


Fig. 3. Lumbar Exerciser, Bench

Raise the head and trunk as high as possible.

Common Faults:
– Tilting the chin upward and the head backward.
– Performing the exercises too fast.

BACKWARD PELVIC TILT/HOLLOW LOWER BACK/LORDOSIS[1]

Exercises to Increase the Flexibility of the Back Extensors, the Hamstrings, and the Gastrocnemius and Soleus muscles, the Hip Flexor muscles, and the ligaments of concern in those areas.

Objective:
- To increase the flexibility of the back extensor muscles in the lumbar area of the spine.

Exercise 1. NAME: Overhead Toe Touch
Equipment: Mats
Description: Starting position: Supine lying on the floor, with the knees flexed, the feet close to the buttocks, and the arms along the sides of the body.

[1]Exercises adapted from Mueller and Christaldi (Exercises 1, 2, 3, 5, and 10 on pages 121-124, 129) with the permission of Lea and Febiger.

- Draw the knees toward the chest.
- Straighten the knees so that the straight legs are over the head and trunk, parallel to the floor.
- In this position, the back should be rounded as much as possible, the buttocks should not go beyond the head, and the legs should be kept as close to the body and head as possible.
- Hold this position for several seconds.
- Return to the starting position.
- Repeat several times in accordance with the stage of development of each individual.

Common Faults:
– Flexing the knees when they should be extended.
– Permitting much of the weight to be borne by the shoulders and neck.

Fig. 1. Overhead Toe Touch

Back extensor suppling in the lumbar area.

Objective:
- To increase the flexibility of the back extensors, the hamstrings, and the gastrocnemius and soleus muscles.

Exercise 2. NAME: Stall Bar Dipping
Equipment: Stall Bars
Description: Starting position: Correct standing position facing the stall bars at arm length distance, with the hands shoulder width apart, grasping the rung which is at shoulder height, and the feet placed on the bottom rung with the heels on the mat.

- Flex the hips and bend the trunk (with rounded back) keeping the legs straight.
- Then move the hands successively to the next lower rungs.
- Each time the hand have been moved to the next rung, the body is dipped downward three times.

Fig. 2. Stall Bar Dipping

Dipping downward on the stall bars to supple the back and hamstring muscles.

- Continue this process until the lowest rung within his ability is reached.
- Place feet on the mat and straighten to a stand.
- The exercise should be repeated vigorously in accordance with the stage of development of each individual.

Common Faults:
- Flexing the knees.
- Failing to progress to as low a bar as possible.

Objective:
- To increase the flexibility of the back extensors, hamstrings, and gastrocnemius and soleus muscles.

Exercise 3. NAME: Back Extensor Stretching, Partner
Equipment: None
Description: Starting position: Correct body sitting position on the floor, with the legs straight, the feet several inches apart and braced against stall bars or wall, and the fingers behind the neck.
- An assistant stands behind the person with one hand on each scapula.
- The assistant pushes downward on the scapulae on counts 1-2-3, and then returns to the starting position on count 4.
- Repeat in accordance with the stage of development of each individual.

Note: The stretching effect is determined by the amount of pressure exerted by the assistant.

Common Faults:
- Flexing the knees.
- Inadequate trunk bending forward.
- Use of jerking movements by the assistant.

Fig. 3. Back Extensor Stretching, Parner

Back extensor and hamstring suppling with the aid of an assistant.

Objective:
- To increase the flexibility of the hip flexor muscles.

Exercise 4. NAME: Hip Flexor Suppling : Bench
Equipment: Bench or Stool and Stall Bars.
Description: Starting position: Correct sitting position on bench which is parallel with the stall bars, or on stool, facing stall bars, with hands on hips, feet on bottom rung with toes supported under second rung.
- Slowly lower trunk backward until hip joints are fully extended or extended as far as possible.
- Return to starting position.
- Repeat slowly several times in accordance with the stage of development of each individual.

Note: This exercise is contraindicated for individuals who cannot perform exercises without hyper-extending the lumbar spine.

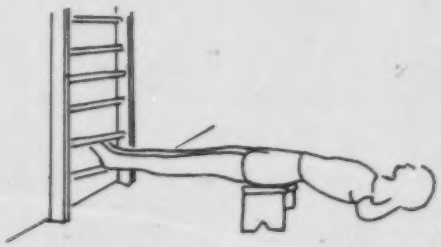


Fig. 4. Hip Flexor Supplying: Bench

Hip flexor suppling by lowering trunk downward.

The exercise can be made more difficult, with great effect, by having the hands on the back of the neck, and even more so by having the arms extended overhead.

Exercise 5. NAME: Hip Flexor Suppling: Supine Position
Equipment: Mats
Description: Starting position: Supine-lying position on the floor, with the fingers behind the neck and the knees drawn to the chest.
- Without touching the leg or foot to the floor, extend the left leg until it is close to and parallel with the floor.
- Bend the left knee to the chest as the right leg is extended. Repeat continuously several times and then rest.
- Repeat several times in accordance with the stage of development of each individual.

Fig. 5. Hip Flexor Suppling: Supine Position

Extending and bending alternate legs.

Common Faults:
- Extending the legs too high.
- Doing the exercise too rapidly.

Exercise 6. NAME: Lordosis Eliminator
Equipment: Mats
Description: Supine lying position, knees bent, feet flat on floor and hands resting on thighs. On command, the student:

- Raises head, shoulders, and back slowly by "curling" to a sitting position.
- Reverses the process in returning to the mat, i.e., uncurls the body one vertebra at a time.
- Repeats the exercise.

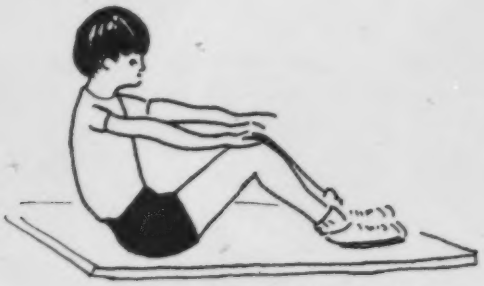


Fig. 6. Lordosis Eliminator

Teaching Hints:
– Stress performing in slow motion with emphasis on curling and uncurling the body.

EXERCISES FOR THE ANKLE AND FOOT[1]

Exercise 1. NAME: Dorsi and Plantar Flexion
Equipment: Chair and/or Mat
Description:

- Sitting, prone, or supine position.
- Foot in neutral position.
- Dorsiflex (pull up) foot as far as possible.
- Hold.
- Plantar flex (push down) foot as far as possible.
- Hold.
- Return to starting position.

Teaching Hints:
– Have the students identify the muscles as they become tense.

Exercise 2. NAME: Inversion
Equipment: Chair and/or Mat
Description:

- Sitting, prone, or supine position.
- Foot in neutral position.
- Dorsiflex foot and invert (pull medially) as far as possible.
- Hold.
- Return to starting position.

[1]Exercises adapted from Ronald C. Adams, Alfred N. Daniel and Lee Rullman, *Games, Sports and Exercises for the Physically Handicapped, pp. 225,226.* Permission to publish granted.

Fig. 1. Dorsi and Plantar Flexion

Teaching Hints:
– Do not rotate hip or upper leg.

Fig. 2. Inversion

Exercise 3. NAME: Plantar Flexion and Inversion
Equipment: Chair and/or Mat
Description:

- Sitting, prone, or supine position.
- Foot in neutral position.
- Plantar flex foot and invert (pull medially) as far as possible.
- Hold.
- Return to starting position.

Teaching Hints:

– Do not rotate hip or upper leg.

Exercise 4. NAME: Plantar Flexion and Eversion

Equipment: Chair and/or Mat
Description:

- Sitting, prone, or supine position.
- Foot in neutral position.
- Plantar flex foot and evert (pull laterally) as far as possible.
- Hold.
- Return to starting position.

Fig. 3. Plantar Flexion and Eversion

Teaching Hints:

– Do not rotate hip or upper leg.

Exercise 5. NAME: Toe Flexion
Equipment: None
Description:

- Sitting, prone, or supine position.
- Foot in neutral position.
- Flex toes as far as possible.
- Hold.
- Return to starting position.
- Extend toes as far as possible.
- Do not dorsiflex foot or ankle.
- Hold.
- Return to starting position.

Teaching Hints:

– Stabilize foot and ankle when performing toe exercises.

Fig. 4. Toe Flexion

Exercise 6. NAME: Dorsiflexion, Achilles Tendon
Equipment: None
Description:

- Sitting or supine position.
- Foot in neutral position.
- Instructor or therapist takes patient's heel in palm of hand.
- Instructor or therapist's fingers are across heel near insertion of "Achille's tendon."
- Upper part of instructor or therapist's hand, wrist, and forearm is placed against sole of foot.
- Opposite hand is placed on anterior surface of knee to keep knee straight.
- Instructor or therapist slowly pushes toes, foot and ankle into dorsiflexion by moving hand and forearm toward the knee.
- Hold at maximum stretch.
- Release slowly.
- Return to starting position.

Teaching Hints:

– Patient relaxes foot and ankle.

Exercise 7. NAME: Plantar Flexion, Standing Position
Equipment: None
Description:

- Stand.
- Feet parallel, 4 to 6 inches apart.
- Knees slightly flexed.
- Raise heel from floor into plantar flexion.
- Hold.
- Lower slowly.
- Return to starting position.

Teaching Hints:

– Locate and identify the contracted muscles.

Exercise 8. NAME: Plantar Flexion, Eversion and Inversion
Equipment: None
Description:

- Stand.
- Feet parallel, 4 to 6 inches apart.

- Knees slightly flexed.
- Raise heels from floor into plantar flexion.
- Swing heels outward.
- Hold.
- Swing inward.
- Return to starting position slowly.

Teaching Hints:
– None.

Exercise 9. NAME: Heel Stretching, Book or Plank
Equipment: Book or Plank
Description:
- Stand, facing a wall about arm's length away.
- Feet parallel, 6 to 12 inches apart.
- Place toes and upper part of foot on book or piece of wood.
- Heel of foot on floor.
- Knees straight.
- Hands against wall.
- Keep body erect, buttocks in line with upper body.
- Slowly lean forward toward wall.
- Hold at maximum stretch.
- Return to starting position slowly.

Teaching Hints:
– Do not raise heels off the floor.

Exercise 10. NAME: Toe Walking
Equipment: None
Description:
- Stand.
- Feet parallel, 6 to 12 inches apart.
- Walk on toes.
- Hold.
- Return to starting position.

Teaching Hints:
– Vary to position (inward and outward while walking).

Exercise 11. NAME: Heel Walking
Equipment: None
Description:
- Stand.
- Feet parallel, 6 to 12 inches apart.
- Walk on heels.
- Hold.
- Return to starting position.

Teaching Hints:
– None

Exercise 12. NAME: Towel Squeeze
Equipment: Stool and Towel
Description:
- Sit on stool.
- Towel on floor.
- Feet parallel, 6 to 12 inches apart.
- Flex toes and try to grasp towel.
- Extend toes, release towel.
- Return to starting position.

Teaching Hints:
– Practice task with left and right foot.

Exercise 13. NAME: Pick-up Marbles
Equipment: Stool, Towel and Marbles
Description:
- Sit on stool.
- Towel on floor, marbles on towel.
- Flex toes, try to pick up marbles and move to another part of the towel, extend toes to release marbles.
- Return to starting position, repeat.

Teaching Hints:
– Practice task with left and right foot.

Exercise 14. NAME: Walk, Supination Board
Equipment: Board
Description:
- Stand.
- Feet parallel, 6 to 12 inches apart.
- Place weight on outer surface of feet by inverting feet.
- Walk on outer surface of feet.
- Return to starting position.

Fig. 5. Walk on Supination Board

Teaching Hints:
– Perform exercise on the floor.

Exercise 15. NAME: Walk, Everted Position
Equipment: None
Description:
- Stand.
- Feet parallel, 6 to 12 inches apart.
- Place weight on inner surface of feet by everting feet.
- Walk on inner surface of feet.
- Return to starting position.

Teaching Hints:
– Imitate the "Jerry Lewis" walk.

SOURCES FOR ADDITIONAL EXERCISES, TASKS AND BACKGROUND INFORMATION

The text by Mueller and Christaldi[1] provides an excellent list of exercises for the posture categories cited in this manual. Lilly[2] has developed a student handbook that presents an overview of body mechanics and would be appropriate for providing learning experiences for high school students. McNeil Laboratories[3] has prepared selected exercises for lower back pain and some tips for performing the tasks of daily living. (This material is only distributed to the members of the medical profession. Request the school physician procure a copy on your behalf.)

Teachers interested in the clinical aspects of posture problems are referred to:

Hugo A. Keim[4], Scoliosis – a detailed description of the causes and treatment of scoliosis; profusely illustrated in color.

David S. Bradford et. al.,[5] Juvenile Kyphosis – a series of illustrations depicting non-operative and operative problems and appropriate exercises.

William P. Blount[6], Early Recognition and Evaluation of Spinal Deformity – a sound rationale for early screening for postural abnormalities and the use of the Milwaukee Brace to avoid surgical involvement.

Ronald C. Adams[7], Model Units of Instruction for Milwaukee Brace Wearers – a paper that stresses the importance of the physical educator's understanding the mechanics of the Milwaukee Brace. Includes student objectives, learning experiences, and supply and equipment needs.

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[1] Grover W. Mueller and Josephine Christaldi, *A Practical Program of Remedial Physical Education.*

[2] Luella J. Lilly, *An Overview of Body Mechanics: A Student Handbook.*

[3] "Remedial Exercises for Lower Back Pain," McNeil Laboratories, Inc.

[4] Hugo A. Keim, *Scoliosis.*

[5] David S. Bradford, *Juvenile Kyphosis.*

[6] William P. Blount, M.D. "Early Recognition and Evaluation of Spinal Deformity."

[7] Ronald C. Adams, *Model Units of Instruction for Milwaukee Brace Wearers.*

APPENDICES

APPENDIX A

GLOSSARY

Abdominal Ptosis – sagging or protusion of lower abdominal muscles.

Abduction – splayed foot.

Adduction – pidgeon toed.

Eversion – tipping lateral edge of foot upward.

Fatigued Slump – complete breakdown of body or spine alignment.

Flat Lower Back – decrease in lumbar curvature.

Flat Upper Back – absence of normal curvature of thoracic area.

Forward Head – greater than normal curve in cervical area.

Hallux Valgus – abnormal abduction of the large toe.

Hammer Toe – continuous contraction of the toes instead of lying flat.

Inversion – tipping medial edge of foot upward.

Kypholordosis – combination of Kyphosis and Lordosis. Usually the development of one causes the other to develop.

Kyphosis – abnormal amount of flexion in thoracic spine.

Lordosis – exaggeration of normal hyper-extension of lumbar spine.

Metatarsalgia – when the heads of the metatarsal bones jam the nerve endings causing extreme pain across the transverse arch.

Pes Cavus – extremely high longitudinal arch.

Pes Planus – flat feet. Absence of longitudinal arch.

Pronation – tipping lateral border up and toeing out. Eversion and abduction.

Round Shoulder – abnormal position of shoulder girdle. Anterior muscles of chest are overdeveloped and the posterior muscles of the back are underdeveloped.

Scoliosis – rotolateral curvature of the spine. Two types: C-curve and S-curve.

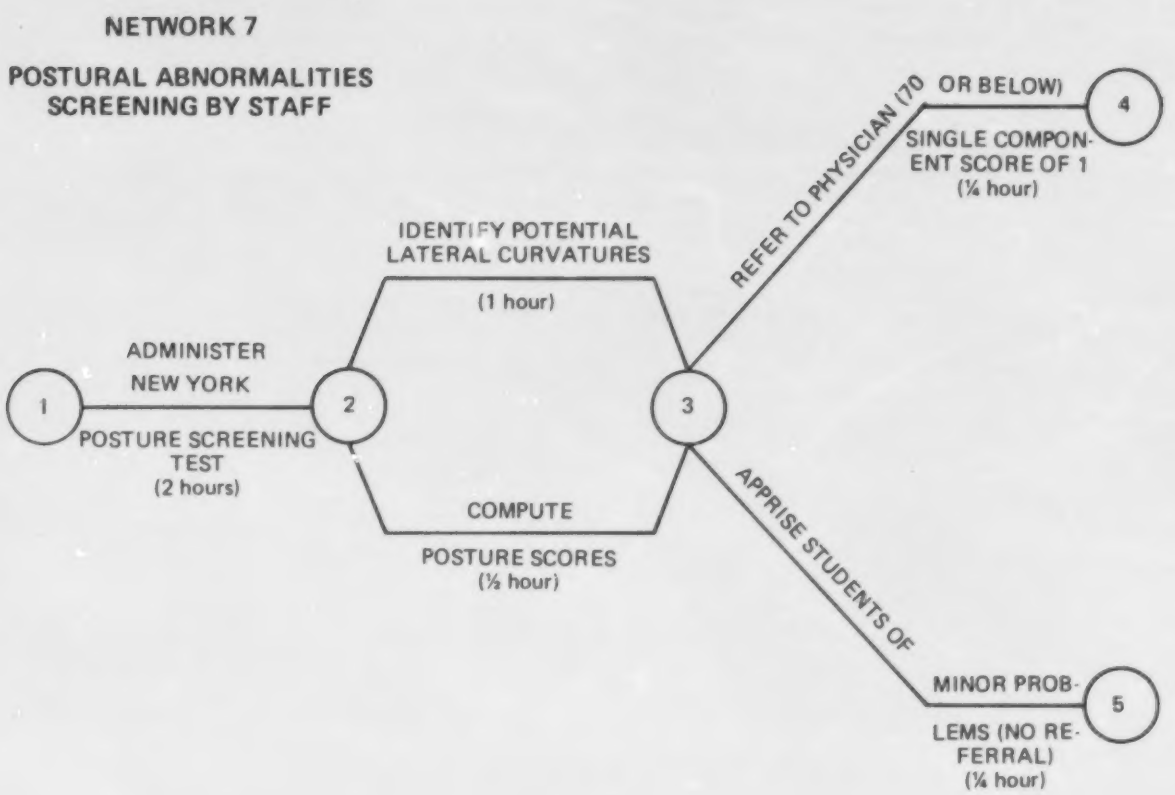
Supination – tipping medial border up and toeing in. Inversion and abduction.

Tibial Torsion – while walking in abducted (splay foot) manner, the body compensates by turning the knee in thus twisting the tibia.

Winged Scapula – abduction of shoulder blades.

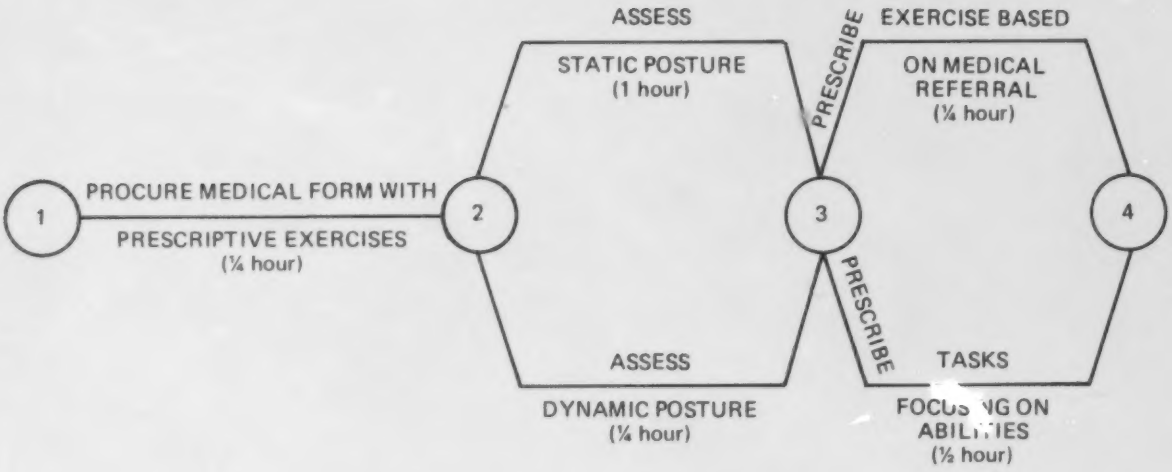
APPENDIX B

POSTURE PROGRAM FLOW CHART


NETWORK 7
POSTURAL ABNORMALITIES SCREENING BY STAFF
1
ADMINISTER NEW YORK POSTURE SCREENING TEST (2 hours)
2
IDENTIFY POTENTIAL LATERAL CURVATURES (1 hour)
COMPUTE POSTURE SCORES (⅛ hour)
3
REFER TO PHYSICIAN (70 OR BELOW)
4
SINGLE COMPONENT SCORE OF 1 (¼ hour)
APPRISE STUDENTS OF MINOR PROBLEMS (NO REFERRAL) (¼ hour)
5

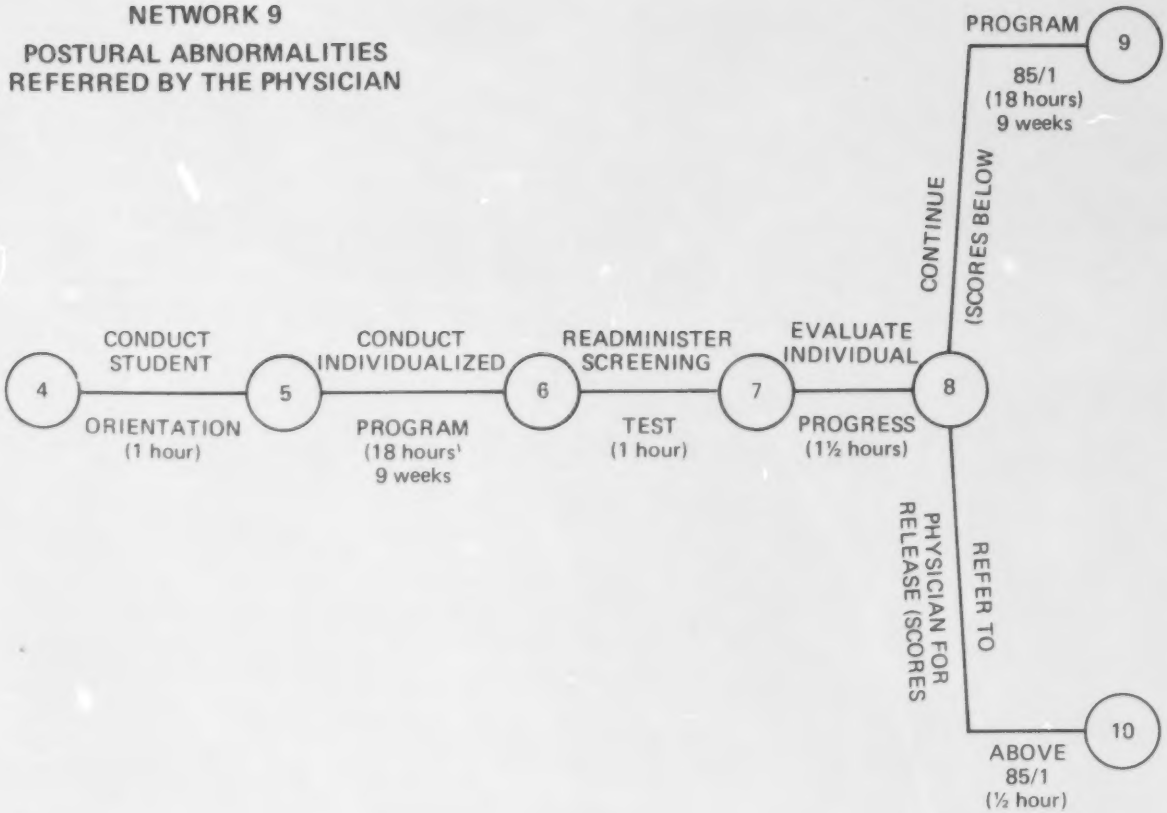
NETWORK 8

POSTURAL ABNORMALITIES REFERRED BY THE PHYSICIAN



NETWORK 9

POSTURAL ABNORMALITIES REFERRED BY THE PHYSICIAN



APPENDIX B (Continued)

ACTIVITY CHECKLIST

EVENT NUMBERS		ACTIVITY TIME	ACTIVITY DESCRIPTION	NETWORK NUMBERS	EXPLANATION
BEGINNING	ENDING				
1	5	4 hours	**POSTURAL ABNORMALITIES: SCREENING BY STAFF**	7	Students will be screened by physical education staff
1	2	2 hours	Administer Modified New York Posture Screening Test . Explain and demonstrate the purpose of the "screening" test . Set-up station (to include grid, stadiometer, disinfectant, basin, chair, object to be picked up) . Explain "screening" procedure: five at a time report to "screening" area; girls in swim suits; boys in shorts . Student assistant to check and record heights and weights . Record scores on student forms . Post test directions and sample forms	7	Students will be "screened" during the regular physical education period
2	3	1 hour	Identify Potential Scoliosis Cases . Students with lateral curvatures of the spine are to be measured in terms of leg length and scapulae displacement . Ascertain whether the problem is functional, or structural	7	Lateral curvatures of the spine will be identified for further screening

APPENDIX B (Continued)

ACTIVITY CHECKLIST

EVENT NUMBERS		ACTIVITY TIME	ACTIVITY DESCRIPTION	NETWORK NUMBERS	EXPLANATION
BEGINNING	ENDING				
2	3	½ hour	Compute Posture Scores ·Score each of the 13 items on a 7-4-1 basis ·Add a constant of 9 to each score total ·Circle composite scores of 70 or below and/or single item scores of 1	7	Self-explanatory
3	4	¼ hour	Refer to Physician: 70 or Below, Component Score of 1 ·Fill out Teacher Referral Form and forward to the school nurse	7	Self-explanatory
3	5	¼ hour	Apprise Students of Minor Problems: No Referral ·Prescribe and implement exercises for minor problems in the unrestricted program	7	Self-explanatory
1	10		**POSTURAL ABNORMALITIES: REFERRED BY PHYSICIAN**	8-9	Family or school physician will examine and prescribe program
1	2	¼ hour	Procure Medical Form With Prescriptive Exercises ·Obtain medical form from the school nurse		Self-explanatory

APPENDIX B (Continued)

ACTIVITY CHECKLIST

EVENT NUMBERS		ACTIVITY TIME	ACTIVITY DESCRIPTION	NETWORK NUMBERS	EXPLANATION
BEGINNING	ENDING				
2	3	1 hour	Assess Static Posture ·Administer posture screening test · Scoliotic subjects: measure leg length and scapulae displacement · Record data on individualized prescription form	8	Baseline data will be gathered
2	3	¼ hour	Assess Dynamic Posture · Observe performance while the student walks, lifts and replaces an object, and sits and rises	8	Baseline data will be gathered
3	4	¼ hour	Prescribe Exercises Based on Medical Referral · Record exercises on individualized prescription form · Prescribe time allotments based on medical prescription	8	Exercises will be selected from pre-approved list furnished by the family or school physician
3	4	½ hour	Prescribe Tasks Focusing on Abilities · Determine pupil interests via an inventory · Post new activities that may interest the students · Prescribe selected activities for half the period	8	Tasks will be prescribed on the basis of pupil interest

APPENDIX B (Continued)

ACTIVITY CHECKLIST

EVENT NUMBERS		ACTIVITY TIME	ACTIVITY DESCRIPTION	NETWORK NUMBERS	EXPLANATION
BEGINNING	ENDING				
4	5	1 hour	Conduct Student Orientation Program · Explain class procedures, care and replacement of supplies and equipment and safety rules · Prepare necessary forms	9	Program values, daily class procedure will be discussed; all necessary forms will be prepared
5	6	18 hours (9 weeks)	Conduct Individualized Program · Set-up individualized stations · Record dates and accomplishments on Individual Prescription Cards	9	Program will consist of activities prescribed on the basis of deficiencies and abilities
6	7	1 hour	Readminister Screening Test	9	Self-explanatory
7	8	½ hour	Evaluate Individual Progress · Compare pre- and post-test results	9	Post-screening will be administered; results will be analyzed
8	9	18 hours (9 weeks)	Continue Program: Scores Below 85/1 · Encourage performance of exercises at home (solicit parental support) · Urge sound body mechanics in all daily tasks	9	Self-explanatory

ACTIVITY CHECKLIST

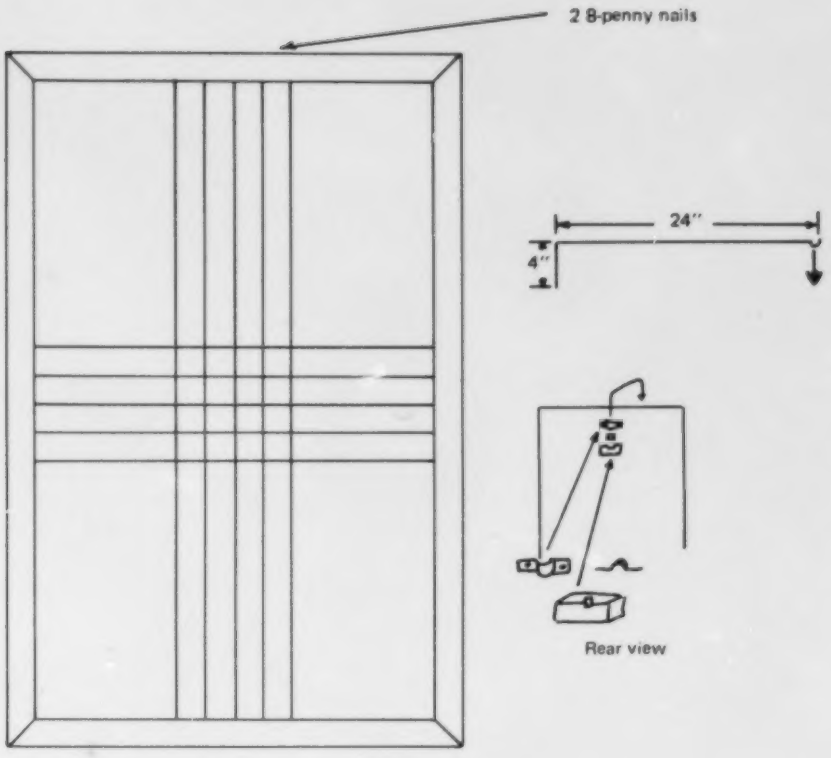
EVENT NUMBERS		ACTIVITY TIME	ACTIVITY DESCRIPTION	NETWORK NUMBERS	EXPLANATION
BEGINNING	ENDING				
8	10	½ hour	Refer to Physician For Release: Score Above 85, With No Single Component Score of 1 • Physician to reexamine and release or return to program.	9	Self-explanatory

APPENDIX C

POSTURE SCREENING GRID CONSTRUCTION DIRECTIONS

(Courtesy of the Township of Ocean School District)

CONSTRUCTABLE ITEMS



Materials needed:

Grid: one 1/8" x 4' x 8' masonite
Frame: one 3/4" x 3" x 24'
Rod: one 3/8" x 30"
Clamps: two
Wooden block: one 1" x 4"
Plumb bob: one
Paint:
1 quart of flat black enamel
1 pint of fast-drying white lacquer
Striping tool: one
Straight edge: 8' long, 3" wide

Instructions:

1. Reduce masonite to proper size.
2. Paint masonite.
3. Place frame on masonite; secure with 3/4" roofing nails (miter corners).
4. Draw horizontal and vertical lines. Start at midpoint and paint lines 2" apart with the striping tool. Be sure to secure the straight edge to the frame with clamps to insure straight lines
5. Touch up any overrun of striping with black enamel border.

APPENDIX D

GUIDE TO THE EVALUATION OF POSTURE AND BODY ALIGNMENT[1]

The evaluation of body alignment and posture by the evaluator helps to serve a dual purpose:

Purpose I:

To acquaint the examiner with postural deviations of the individual and thereby serve as a guide for the exercise program.

Purpose II:

To provide a record for the future reference from which to evaluate progress or change in body alignment.

EVALUATION OF BODY ALIGNMENT AND POSTURE

A. Notations on screening form.

1. The name of each child should be clearly PRINTED.
2. Age of the child should be recorded in years and months.
3. Name of school is clearly indicated.
4. Record weight accurately.
5. Record height in inches.
6. Leg length record in inches – be careful to place correct measurements with correct leg.
7. Record all other anthropometric measurements carefully.
8. In "remarks area" make notations of past and present history from student which may have a bearing on posture and body alignment evaluation.
9. Record correct date of examination.

B. Screening Procedure

1. Boys should be screened in gym shorts.
2. Girls should be screened in bathing suits or any other suitable attire to allow efficient evaluation.
3. No footwear or socks should be worn by students.
4. In evaluating the student for postural deviation "O" is ideal and any slight deviation from this is considered normal and should not be recorded.
5. Adjust the student's stance without attempting to correct a postural deviation in order to allow the best evaluation by the evaluator.
6. Use a red pencil for initial screening to indicate first observations, and do not hesitate to record on the figure any deviations noted.
7. Leg length is measured from the anterior superior spine of the ilium to the internal malleolus. (Measurements taken with steel tape.)
8. Calf circumference is measured 4-5 inches below the inferior tip of the patella (mid-calf). (Measurements taken with steel tape.)
9. Thigh circumference is measured 6 inches above the superior tip of the patella (mid-thigh). (Measurements taken with steel tape.)
10. All skinfold measurements are made on the RIGHT side of the body. Apply the calipers about 1 cm. from the fingers holding the skinfold and at a depth approximately equal to the thickness of the fold. All folds are taken in the vertical plane except when the lines of Linn result in torsion of the skinfold in which case it is taken along these lines:
    (a) **Chest** – Midpoint between the anterior crease of the axilla and the nipple.
    (b) **Abdomen** – adjacent to the umbilicus.
    (c) **Arm** – Midposterior midpoint between the tip of the acromion and the tip of the olecranon with the elbow in 90^{o} flexion, and with the extremity hanging straight in an extended position.
    (d) **Back** – Tip of the scapula with the subject in a relaxed standing position.
11. **Grip Strength** – Taken with a grip dynamometer, be careful of placement of dynamometer – scale should be facing out.

REAR VIEW

Pumpbline should bisect the body into two equal parts.

A. **Head**
   1. Tilt – head may slant toward one side or the other, evaluator may indicate on figure.

B. **Shoulder level**
   1. One higher than the other, evaluator may indicate on figure. (Use horizontal grid lines as a guide.)

C. **Shoulder blades**
   1. The inferior angle of the scapula is normal at the level of the seventh thoracic vertebral spinous process.
   2. "Winging" of the scapula – the vertebral border is pulled away from the posterior back or spinal processes of the vertebrae.

D. **Upper and Lower spine**
   1. Mark direction of convexity.
   2. In reference to "C" curve the examiner will mark both upper and lower spine in direction.
   3. In reference to "S" curve please mark convexity carefully.

[1] Al Daniel, "Guide to the Evaluation of Posture and Body Alignment." Permission to publish granted.

E. **Hip level**
   1. Use horizontal grid lines as a guide.
   2. If in doubt as to lack of prominence of hip bones, the examiner may place hands on crest of ilium and observe any difference in level of hands.

F. **Ribs**
   1. The student stands up right. The examiner, using the index and middle fingers, rubs briskly over the spinous processes of the vertebrae from the neck to the hips. Check for spinal deviations.
   2. The student now stands with the trunk flexed at the hips, upper body parallel to the floor, the examiner then observes the contour development of ribs from the rear. Note any differences of rib growth and/or lack of symmetry.

G. **Legs**
   1. Note only knock-knee or bowed legs.

H. **Popliteal line**
   1. At rear of knee level is an indentation or break in contour of skin where knee is flexed in movement, check level behind each leg.

I. **Pronation**
   1. Achilles tendon is straight, note any deviation from this norm.

SIDE VIEW

Remember, check total body alignment before making segmented evaluation.

A. **Head** (plumbline through lobe of ear)
   1. Head in front of plumbline – indicate (head forward).
   2. Head back of plumbline – indicate (head backward).

B. **Shoulders** (Plumbline through center of shoulder joint).
   1. "Cupping" inward movement of shoulders toward sternum (Kyphosis).
   2. "Winging" of scapula, this refers to prominence of the inferior angle of the scapula or in some cases the entire vertebral border, posteriorly. (muscular development may cause false winging.)

C. **Spine** (No exaggeration of spine curvatures).
   1. Upper spine curvature.
   2. Lower spine curvature (Lordodis). Exaggerated lumber curve often associated with an anterior tilt of the pelvis.
   3. Try to visualize long skeleton.
   4. Check at this point if the student is leaning backwards.

D. **Hip** (Plumbline through greater trochanter of the femur).
   1. Flexion (indicated two ways).
      (a) Student stands with the knees straight and the trunk is flexed forward at the hip.
      (b) Student stands with knees flexed associated with hip flexion and trunk upright.

E. **Knee** (Plumbline posterior to the patella).
   1. Flexion – knee joint is flexed and may be anterior to the plumbline.
   2. Hyperextension – knee joint forms an open angle and is posterior to the plumbline.

F. **Body**
   1. Forward – most of body forward of line.
   2. Backward – most of body back of line.
   3. Bowed – midsection more anterior than upper and lower portions of the body.

G. **Arch Depression**
   1. Try to visualize a line from just below the medial malleolus to the proximal end of the 1st phalange of the big toe, then check scaphoid (Talus) bone and its relationship to line and floor.

GLOSSARY

1. Anterior superior spine-front, upper part of the hip. (Illium)
2. Patella – a round sesamoid bone in front of the knee
3. Inferior – lower
4. Superior – the upper part
5. Malleolus – the lower end of the fibula (ankle)
6. Seventh thoracic vertebrae – the middle area of the back on a line with the lower angle of the scapula
7. Spinal processes-pertaining to the spine – part palpated in the back
8. Pronation – the downward turning of the part
9. Posteriorly – toward the rear
10. Proximal – nearest
11. Talus – (Scaphoid) – the "heel" bone of the ankle
12. Acromion – the process at the summit of the scapula
13. Olecranon – large process forming the head of the ulna
14. Scapula – large flat triangular bone of the shoulder
15. Grip dynamometer – instrument for measuring muscular strength

APPENDIX E

SCHOOL SENTIMENT INDEX INTERMEDIATE LEVEL[1]

Description and Rationale

In this inventory, students respond by marking "true" or "untrue" to a series of statements regarding school, to indicate whether or not each statement is true for them. The statements involve student preceptions of, or attitudes toward various aspects of school, rather than a mere objective reporting of these aspects.

This self report device attempts to secure, in a rather straightforward fashion, a student's responses to statements pertaining to five aspects of attitude toward school. Examples of each dimension (for which subscale scores may be obtained) are: (1) *Teacher:* "My teacher makes sure I always understand what she wants me to do." (mode of instruction), "My teacher treats me fairly." (authority and control), "I like my teacher." (interpersonal relationships) (2) *Learning:* "I would rather learn a new game than play one I already know." (3) *Social structure and climate:* "The principal of my school is friendly toward the children." (4) *Peer:* "I really like working with the other children in my class." (5) *General:* "I often get headaches at school." From these examples it can be seen that if a student wished to answer untruthfully, in such a way that his responses might be viewed in a better light, it would not be too difficult to do so. Such tendencies to supply false responses can be minimized by utilizing as the administrator a person other than the classroom teacher, and by administering the measure in such a way that the anonymity of the respondent is both real and perceived.

Items representing each subscale are as follows:

Teacher:

Mode of Instruction:
Items 2, 7, 9, 14, 16, 23, 29, 35, 46, 57, 60, 65

Authority and Control:
Items 6, 21, 28, 31, 34, 39, 48, 53, 56, 59, 63, 64

Interpersonal Relationships with Pupils:
Items 3, 10, 18, 25, 37, 43, 51, 66, 67, 68, 69, 70

Learning: Items 24, 38, 44, 52, 73, 74, 75, 76, 77, 78

Social Structure and Climate: Items 5, 12, 13, 20, 27, 33 41, 45, 49, 55, 62

Peer: Items 1, 8, 15, 22, 30, 36, 42, 47, 50, 61, 71, 72

General: Items 4, 11, 17, 19, 26, 32, 40, 54, 58, 79, 80, 81

[1] *Attitude Toward School,* Grades K-12, Revised Edition (Los Angeles, Calif.: Instructional Objectives Exchange, 1972), pp. 78-89. Permission to publish granted.

Directions for Administration

The *School Sentiment Index* may be administered in a variety of ways:

1. The entire 81 items may be administered and a single score obtained yielding a global estimate of attitude toward school.
2. The 81 items may be administered, but those representing each subscale scored separately, yielding information on the attainment of each objective.
3. Items in a subscale representing particular objectives of interest may be administered and scored separately.

It is expected that students will be able to answer the 81 statements in approximately 20-30 minutes. If the administrator feels that the students' reading capabilities will prohibit their completing the measure in this time period, the statements should be read orally to the students.

Before beginning the measure, the directions should be read orally to the students. Make sure students understand the meaning of "true" and "untrue."

If the instruments are to be hand scored, the answer sheet provided may be used. If machine scoring is available and is to be used, responses should be recorded on the appropriate answer sheets; additional instruction in the use of these answer sheets may be necessary.

Emphasize that there are no "right" or "wrong" answers. Remind the students that they are *not* to write their names on the answer sheets. If additional information is needed from students, such as their class or school, instruct them to write this information on the answer sheet.

If students ask questions regarding interpretations of the statements, emphasize that the measure calls only for *general feelings* regarding each statement.

Scoring

Scores may be obtained by counting one point for each *positive* response; that is, for each "true" or "untrue" response which indicates:

1. favorable attitude toward aspects of teacher behavior (teacher subscale).
2. expressed tendency to approach rather than avoid learning-related activities (learning subscale).
3. favorable attitude toward the social structure and climate of the school (school social structure and climate subscale).
4. favorable attitude toward peer relations in the school context (peer subscale).
5. favorable attitude toward the general notion of "school" (general subscale).

The positive responses for each subscale are indicated on the scoring guide.

For hand scoring, a scoring template may be prepared by punching out each positive response on the scoring

guide (for all items, or for only those items in the subscale(s) of interest). The template may then be placed over the student's response sheet, and the number of responses appearing through the punched holes recorded.

Average scores for a group of students for the entire measure or for a particular subscale may be computed by summing the scores for all pupils and dividing by the number of pupils in the group.

SCHOOL SENTIMENT INDEX

Intermediate Level

Directions:

On your answer sheet please show whether each of these sentences is true or untrue *for you* by marking A (true) if the sentence is true or B (untrue) if it is *not* true.

For example:

1.	A True " "	B Untrue	1. My class is too easy.
2.	True	Untrue " "	2. I'd like to stay at my school always.

There are no right or wrong answers, so respond to each item as honestly as you can. *Do not* write your name on your answer sheet.

1. Other children bother me when I'm trying to do my school work.
2. My teacher always tries to tell me when she is pleased with my work.
3. My teacher is interested in the things I do outside of school.
4. Each morning I look forward to coming to school.
5. This school has rules like a jail.
6. In my class, my teacher allows us to make many decisions together.
7. My teacher grades too hard.
8. Other children often get me into trouble at school.
9. My teacher doesn't explain things very well.
10. My teacher listens to what I have to say.
11. It is hard for me to stay happy at school because I wish I could be somewhere else.
12. There are many different activities at school from which I can choose what I would like to do.
13. When I do something wrong at school, I know I will get a second chance.
14. My teacher gives me work that's too easy because she's lazy.
15. I often must do what my friends want me to do.
16. My teacher tries to make school interesting to me.
17. Most school days seem like they will never end.
18. My teacher does not care about me.
19. I don't like having to go to school.
20. The grown-ups at my school are friendly.
21. My teacher gives me as many chances as other children to do special jobs in my classroom.
22. The other children in my class are not friendly toward me.
23. My teacher tries very hard to help me understand hard schoolwork.
24. I like to do my homework.
25. My teacher doesn't understand me.
26. I often wish I was somebody who doesn't have to go to school.
27. This school has events all the time that make me happy I attend school here.
28. My teacher treats me fairly.
29. My teacher tries to make sure I understand what she wants me to do.
30. I really like working with the other children in my class.
31. I'm afraid to tell my teacher when I don't understand something.
32. I feel good when I'm at school because it's fun.
33. I get scared when I have to go to the office at school.
34. My teacher unfairly punishes the whole class.
35. My teacher doesn't give very good tests.
36. School is a good place for making friends.
37. My teacher tries to do things that the class enjoys.
38. I like trying to work difficult puzzles.
39. I'm scared of my teacher because she can be mean to us.
40. I like to stay home from school.
41. When I have a problem on the playground at recess, I know I can find someone to help me.
42. I don't like most of the children in my class.
43. My teacher is not very friendly with the children.
44. The biggest reason I come to school is to learn.
45. My school looks nice.
46. My teacher grades me fairly.
47. I think a new child could make friends easily in my class.
48. I feel like my teacher doesn't like me when I do something wrong.
49. My class is too crowded.
50. When a new child comes into our class, my friends and I try very hard to make him or her feel happy.
51. My teacher likes some children better than others.
52. I feel unhappy if I don't learn something new in school each day.
53. When I do something wrong, my teacher corrects me without hurting my feelings.
54. I like school because there are so many fun things to do.
55. My school doesn't have very many supplies for us to use.

56. My teacher would let the class plan an event alone.
57. My teacher is often too busy to help me when I need help.
58. It would be nice if I never had to come back to school again after today.
59. My teacher doesn't want to hear the children's ideas on classroom rules and behavior.
60. My teacher usually explains things too slowly.
61. Older children often boss my friends and me around at my school.
62. I don't think there is very much to do at this school.
63. My teacher bosses the children around.
64. My teacher gets angry if the class isn't quiet.
65. My teacher usually doesn't know what to do in class.
66. I like my teacher because he (she) is understanding when things go wrong.
67. If I had a problem outside of school I could go to my teacher for help.
68. My teacher cares about the feelings of the pupils in his (her) class.
69. My teacher doesn't care what happens to me outside of school.
70. My teacher is usually grouchy in class.
71. I have my own group of friends at school.
72. I like to work with other children on class projects.
73. Learning new things is not very much fun.
74. When my schoolwork is hard I don't feel like doing it.
75. I don't do very much reading on my own.
76. Almost everything I learn in school is dull.
77. I don't care what scores I get on my schoolwork.
78. I would rather do almost anything else than study.
79. I'm very happy when I'm at school.
80. School is exciting.
81. I don't like school because it's too much work.

ANSWER SHEET

	A True	B Untrue		A True	B Untrue		A True	B Untrue
1.	☐	☐	28.	☐	☐	55.	☐	☐
2.	☐	☐	29.	☐	☐	56.	☐	☐
3.	☐	☐	30.	☐	☐	57.	☐	☐
4.	☐	☐	31.	☐	☐	58.	☐	☐
5.	☐	☐	32.	☐	☐	59.	☐	☐
6.	☐	☐	33.	☐	☐	60.	☐	☐
7.	☐	☐	34.	☐	☐	61.	☐	☐
8.	☐	☐	35.	☐	☐	62.	☐	☐
9.	☐	☐	36.	☐	☐	63.	☐	☐
10.	☐	☐	37.	☐	☐	64.	☐	☐
11.	☐	☐	38.	☐	☐	65.	☐	☐
12.	☐	☐	39.	☐	☐	66.	☐	☐
13.	☐	☐	40.	☐	☐	67.	☐	☐
14.	☐	☐	41.	☐	☐	68.	☐	☐
15.	☐	☐	42.	☐	☐	69.	☐	☐
16.	☐	☐	43.	☐	☐	70.	☐	☐
17.	☐	☐	44.	☐	☐	71.	☐	☐
18.	☐	☐	45.	☐	☐	72.	☐	☐
19.	☐	☐	46.	☐	☐	73.	☐	☐
20.	☐	☐	47.	☐	☐	74.	☐	☐
21.	☐	☐	48.	☐	☐	75.	☐	☐
22.	☐	☐	49.	☐	☐	76.	☐	☐
23.	☐	☐	50.	☐	☐	77.	☐	☐
24.	☐	☐	51.	☐	☐	78.	☐	☐
25.	☐	☐	52.	☐	☐	79.	☐	☐
26.	☐	☐	53.	☐	☐	80.	☐	☐
27.	☐	☐	54.	☐	☐	81.	☐	☐

SCORING TEMPLATE

	A True	B Untrue		A True	B Untrue		A True	B Untrue
1.		○P	28.	○T		55.		○S
2.	○T		29.	○T		56.	○T	
3.	○T		30.	○P		57.		○T
4.	○G		31.		○T	58.		○G
5.		○S	32.	○G		59.		○T
6.	○T		33.		○S	60.		○T
7.		○T	34.		○T	61.		○P
8.		○P	35.		○T	62.		○S
9.		○T	36.	○P		63.		○T
10.	○T		37.	○T		64.		○T
11.		○G	38.	○L		65.		○T
12.	○S		39.		○T	66.	○T	
13.	○S		40.		○G	67.	○T	
14.		○T	41.	○S		68.	○T	
15.		○P	42.		○P	69.		○T
16.	○T		43.		○T	70.		○T
17.		○G	44.	○L		71.	○P	
18.		○T	45.	○S		72.	○P	
19.		○G	46.	○T		73.		○L
20.	○S		47.	○P		74.		○L
21.	○T		48.		○T	75.		○L
22.		○P	49.		○S	76.		○L
23.		○T	50.	○P		77.		○L
24.	○L		51.		○T	78.		○L
25.		○T	52.	○L		79.	○L	
26.		○G	53.	○T		80.	○L	
27.	○S		54.	○G		81		○L

APPENDIX F
ANSWERS TO PROBLEMS

1. Individual scores for each factor:

1.7	7.7
2.4	8.4
3.4	9.4
4.7	10.1
5.7	11.7
6.4	12.1
	13.7

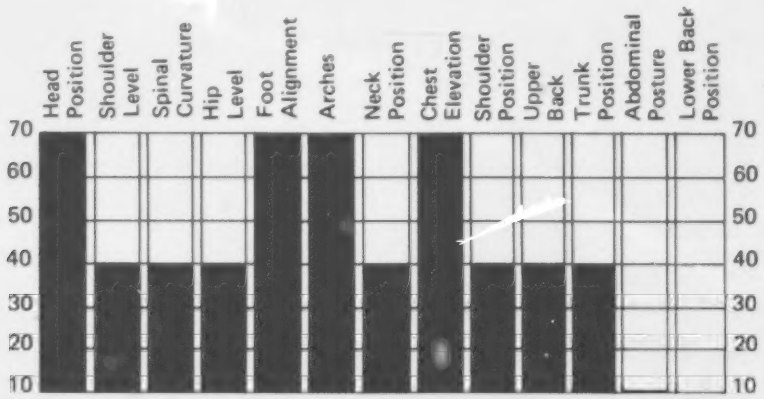
Total composite score = 73 (i.e., 64 + 9)

2. Verbal description:

Static posture: slightly lowered left shoulder, depressed chest, winged scapulae, protruding abdomen/sway back and slightly flat footed.

Dynamic posture:
Walking: pronation of feet
Sitting/rising: trunk forward, small of back not against chair support
Lifting/setting object down: back bent forward, weight away from body.

3. Posture profile



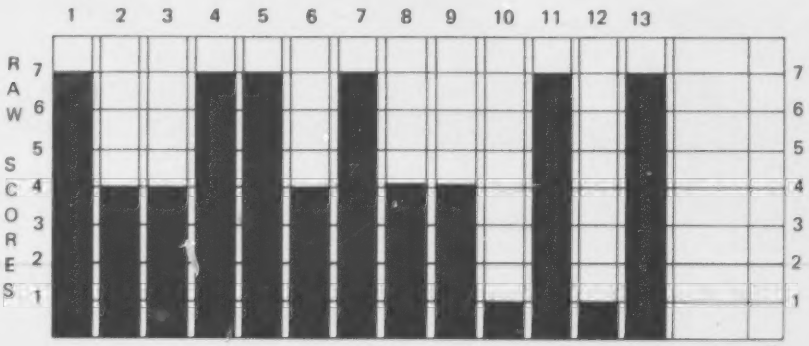
4. Time Prescription

Total Deviation Points Below 7: 27

Total Exercise Time: 27 | 900

Prescription Time Multiplier: 33

Adjustment Time: 9



													Totals
Deviation Points Below 7	–	3	3	–	–	3	–	3	3	6	–	6	–	27
Prescription Time Multiplier	–	33	33	–	–	33	–	33	33	33	–	33	–	
Sub-total	–	99	99	–	–	99	–	99	99	198	–	198	–	891
Adjustment Time	–	–	–	–	–	–	–	–	–	5	–	4	–	9
Total Prsc. Time per Exercise (Seconds)	–	99	99	–	–	99	–	99	99	203	–	202	–	900
In Minutes/Seconds	–	1:39	1:39	–	–	1:39	–	1:39	1:39	3:23	–	3:22	–	15:00

5. Selected Tasks and Activities[1]

Factor	Tasks/Activities	Raw Score	Time
1. Head position		7	
2. Shoulder level (dropped left)	Unilateral Shoulders/Hips, #2*	4	1:39
3. Spinal curvature	Unilateral Shoulders/Hips, #4	4	1:39
4. Hip level		7	
5. Foot alignment		7	
6. Arches	Exercises for Ankle/Foot #'s 2-3*	4	1:39
7. Neck position		7	
8. Chest elevation	Round Upper Back, #1*	4	1:39
9. Shoulder position	Round Upper Back, #2*	4	
10. Upper back	Round Upper Back, #3*	1	3:23
11. Trunk position		7	
12. Abdominal posture	Backward Pelvic Tilt, #'s 1, 5*	1	3:22
13. Lower back		7	
			15:00

6. Leg Length

a. Rationale: When a lateral curvature of the spinal column is suspected

b. Anatomical Landmarks:
(1) crest of the anterior superior spine of the ilium
(2) internal malleolus

Scapulae Displacement

a. Rationale: When a lateral curvature of the spinal column is suspected

b. Anatomical Landmarks:
(1) vertebral border of the scapula
(2) center of the nearest spinal process

Shoulder Level

a. Rationale: To discern discrepancy between level of left and right shoulder

b. Anatomical Landmark:
Acromian process

Hip Level

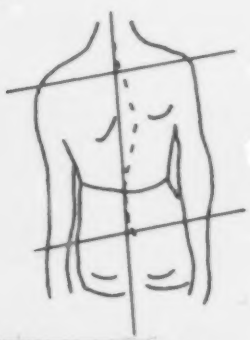
a. Rationale: To discern discrepancy between level of left and right hip

b. Anatomical Landmark:
Crest of the ilium

7. Subject A

Type of curvature:
"S" curve

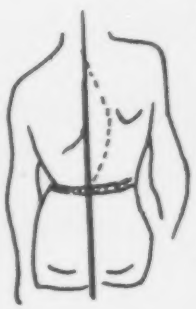
Illustration



Subject B

Type of curvature:
"C" curve

Illustration



[1]The use of an asterisk is indicative of a task prescribed on the basis of a teacher's subjective evaluation.

APPENDIX G

PROJECT ACTIVE
SUPPLY AND EQUIPMENT NEEDS FOR PROGRAM IMPLEMENTATION

To: Adopting School Districts/Agencies

From: Dr. Thomas M. Vodola, Director, Project ACTIVE

Re: **Supply/Equipment Needs for Program Implementation**

The appended tables provide specific information relative to supply and equipment needs for program installation. The format has been designed to facilitate the identification of items for those who are adopting or adapting one phase of the program, or the total program. The information supplied includes:

- The specific item
- Essential items needed (coded with an "N")
- The number of items needed
- Items recommended (coded with an "R")
- The unit price of each item
- The source of the item

The tables reflect the basic needs for implementing the program in one school. It is recommended that one set be purchased for each additional school involved. (If a district has some of the items on hand, it obviates the need for that expenditure.)

Project Director
Thomas M. Vodola, Ed.D.
Township of Ocean School District
Ocean Township Elementary School
Dow Avenue
Oakhurst, N.J. 07755
201–229-4100 Ext. 260

APPENDIX G (Continued)

PROJECT ACTIVE SUPPLY/EQUIPMENT NEEDS[1]

COMPONENT ADOPTED ITEMS	TOTAL PROGRAM				Items Needed	LOW MOTOR ABILITY		LOW PHYSICAL VITALITY		NUTRITIONAL DEFICIENCIES		BREATHING PROBLEMS		POSTURAL ABNORMALITY		MOTOR DISABILITIES		COMMUNICATION DISORDERS	
	N	R	Cost	Source		N	R	N	R	N	R	N	R	N	R	N	R	N	R
PC5026 Shoulder Breadth, Length Caliper	X		74.90	J.A. Preston Corp. 71 Fifth Avenue N.Y., N.Y. 10003	1					X									
PC5028 Large Skinfold (Fat Caliper)	X		142.45	J.A. Preston	1					X									
PC5155 Dry Spirometer	X		176.85	J.A. Preston	1							X							
PC5156 Disposable Paper Mouthpieces	X		31.60	J.A. Preston	500							X							
PC5059 Flexometer		X	246.65	J.A. Preston	1														
or PC5054 Plastic Goniometer (Transparent)	X		20.20	J.A. Preston	1											X			
PC5022A Symmetrigraf (Posture Grid)	X		80.60	J.A. Preston	1									X					
No. 305 Stall Bars, Starter Unit (optional)		X		Nissen Corp. 930 27th Ave. Cedar Rapids, Iowa	1										X				
No. 39 Wall Mounted Horizontal Ladder (optional)		X		Nissen Corp.	1										X				
or Construct Horizontal Ladder (optional)		X		Maintenance Dept.	1										X				X
No. 92602 Utility Playground Ball PG8½	X		3.00	J.L. Hammett Co. 2393 Vaux Hall Rd. Union, N.J. 07083	12	X										X			
No. 92655 Fun Balls (Plastic) S-650	X		.55	J.L. Hammett Co.	12	X										X			

[1] Contact source for unlisted prices.

APPENDIX G (Continued)

PROJECT ACTIVE SUPPLY/EQUIPMENT NEEDS

COMPONENT ADOPTED ITEMS	TOTAL PROGRAM				Items Needed	LOW MOTOR ABILITY		LOW PHYSICAL VITALITY		NUTRITIONAL DEFICIENCIES		BREATHING PROBLEMS		POSTURAL ABNORMALITY		MOTOR DISABILITIES		COMMUNICATION DISORDERS	
	N	R	Cost	Source		N	R	N	R	N	R	N	R	N	R	N	R	N	R
No. 92670 Saf-T Bat (Plastic) No. 705	X		2.25	J.L. Hammett Co.	3	X										X			
Plastic Measuring Tape 36"	X			Local Fabric Shop				X		X				X					
White Shoe Polish, Bottle	X		.55	Local Supermarket	3	X		X						X		X			
No. 39170 Water Color Marking Pen, Black	X		.40	J.L. Hammett	1									X					
No. 61145 Pegboard and Pegs, No. 7615 (optional)		X	3.45	J.L. Hammett	6 sets		X										X		
PEC1064 Walk-On Letters	X		29.85	J.A. Preston	1 set	X													
No. 9201 Audible Ball Electronic	X			Royal Nat'l. Inst. for the Blind, 224-6-8 Great Portland St. London, W-1, England	1													X	
No. 92663 Audi-Ball, No. AB-30 (optional)		X		J.L. Hammett	1													X	
No. 1-0357 Staley Sports Field Kit (optional)				American Printing House for the Blind 1839 Frankfort Ave. P.O. Box 6085 Louisville, Kentucky 40206	1														
No. 1-0304 Portable Audible Goal Locator		X		American Printing House for the Blind	1													X	
Barbells		X		J.L. Hammett	1				X		X				X		X		

APPENDIX G (Continued)

PROJECT ACTIVE SUPPLY/EQUIPMENT NEEDS

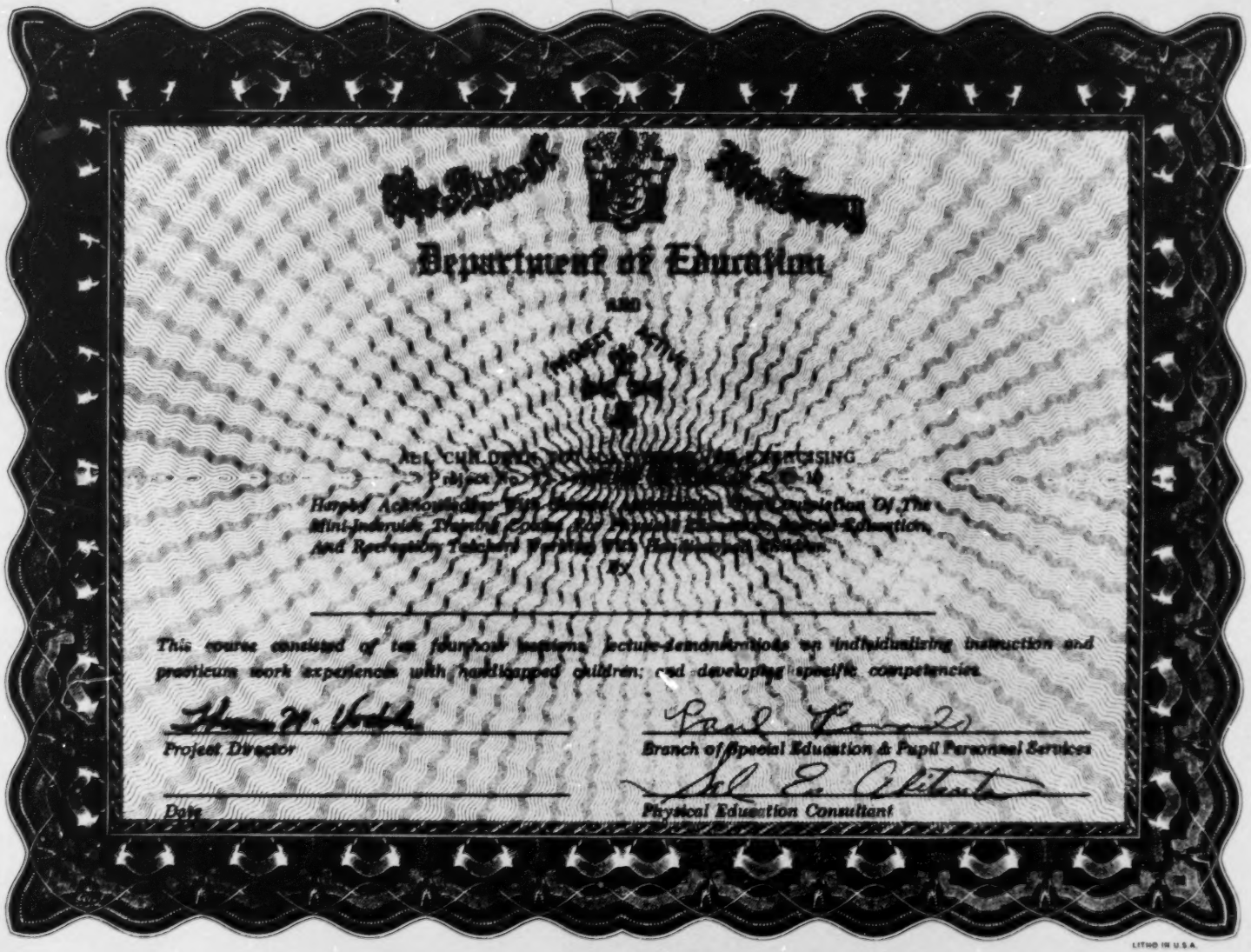
COMPONENT ADOPTED ITEMS	TOTAL PROGRAM				Items Needed	LOW MOTOR ABILITY		LOW PHYSICAL VITALITY		NUTRITIONAL DEFICIENCIES		BREATHING PROBLEMS		POSTURAL ABNORMALITY		MOTOR DISABILITIES		COMMUNICATION DISORDERS	
	N	R	Cost	Source		N	R	N	R	N	R	N	R	N	R	N	R	N	R
Stopwatch	X			J.L. Hammett	1	X		X		X		X							
PEC2747A Beanbag Game		X	50.45	J.A. Preston	2												X		
PEC2747B Beanbag Set		X	32.40	J.A. Preston	1												X		
Chinning Bar	X			Nissen Corp.	2			X							X		X		X
Mats, 5' x 10'	X			Nissen Corp.	3	X		X				X		X		X		X	
No. 92882 Number 3 Fleece Balls	X		1.50	J.L. Hammett	3	X										X		X	
No. 92645 Number CT850 Endure Tetherball	X		10.90	J.L. Hammett	1	X										X			
PEC4806 Walk-On Number Kit	X		17.85	J.A. Preston	1 set	X													
No. 92656 Number S-630 Fun Balls	X		.40	J.L. Hammett	12	X										X			
No. 84252 Rubber Quoit Set	X		5.65	J.L. Hammett	1 set	X													
No. 60676 Footsteps to Numbers, 6076	X		8.00	J.L. Hammett	1 set	X													
No. 92730 Jump Rope (7')	X		1.30	J.L. Hammett	6			X		X		X							
Shape O Ball		X		Tupperware Products	1	X													X
PEC2600 Doorway Chinning Bar		X	14.95	J.A. Preston	1				X									X	
PEC2766A Deluxe Safe-T-Play Batting Set		X	56.90	J.A. Preston	1		X											X	
PEC2771B Pitch Back		X		J.A. Preston	1		X												
Masking Tape		X		Local Store	6 roll		X											X	

APPENDIX D (Continued)

PROJECT ACTIVE SUPPLY/EQUIPMENT NEEDS

COMPONENT ADOPTED ITEMS	TOTAL PROGRAM				Items Needed	LOW MOTOR ABILITY		LOW PHYSICAL VITALITY		NUTRITIONAL DEFICIENCIES		BREATHING PROBLEMS		POSTURAL ABNORMALITY		MOTOR DISABILITIES		COMMUNICATION DISORDERS	
	N	R	Cost	Source		N	R	N	R	N	R	N	R	N	R	N	R	N	R
LP6050 Coordination Skills		X	12.95	Kimbo Educational P.O. Box 246 Deal, N.J. 07723	1		X												
EA606-7 Developing Perceptual Motor Needs		X	12.95	Kimbo Educational	1		X												
EA605 Developing Body Awareness		X	6.50	Kimbo Educational	1		X										X		X
EA655 Relaxation		X	6.50	Kimbo Educational	1		X						X		X		X		X
EA657 Dynamic Balance		X	12.95	Kimbo Educational	1		X												X
EA658 Balance Beam Activity		X	12.95	Kimbo Educational	1		X												
EA656 Pre-Tumbling Skills		X	12.95	Kimbo Educational	1		X												X
LP5000 Developing Body-Space Perception Motor Skills CM1056, 1058, 1079		X	15.75	Kimbo Educational	1		X										X		X
LP5000 Teaching Children Mathematics through Games		X	12.95	Kimbo Educational	1		X												
LP8060 To Move Is To Be		X	12.95	Kimbo Educational	1		X												
LP4000 Rhythmic Rope Jumping		X	10.95	Kimbo Educational	1		X		X		X		X						X
4032-34 Developing Exercises		X		Dance Records, Inc. Waldwick, N.J. 07463	1				X				X						
4008 Elementary School Exercises to Music		X		Dance Records, Inc.	1		X		X				X						X
Foot Disinfectant	X			Local Drug Store	1 Gal.									X				X	

APPENDIX H TEACHER'S CERTIFICATE OF ACHIEVEMENT



The State of New Jersey

Department of Education

AND

PROJECT [illegible]

[illegible] CHILDREN [illegible] EXERCISING

Project No. [illegible]

Hereby Acknowledges With Honors [illegible] Successful Completion Of The Mini-Indertek Training Course For Physical Education, Special Education, And Recreation Teachers Working With Handicapped Children

By

This course consisted of ten four-hour sessions, lecture-demonstrations on individualizing instruction and practicum work experiences with handicapped children; and developing specific competencies.

Thomas W. Verdile
Project Director

Paul Conrad
Branch of Special Education & Pupil Personnel Services

Date

Physical Education Consultant

LITHO IN U.S.A.

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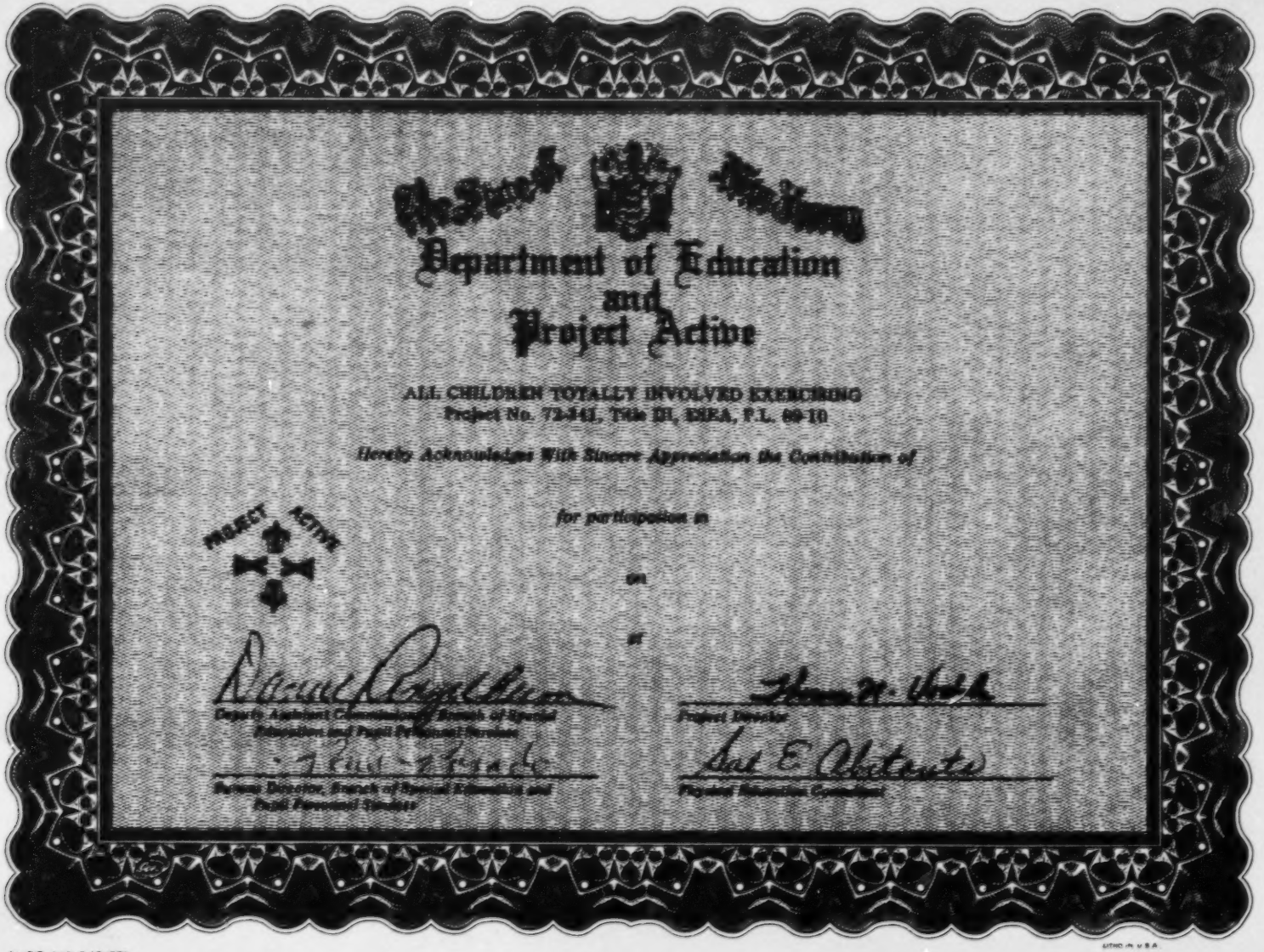
NJDE 401-18 (12/74)

APPENDIX I STUDENT'S CERTIFICATE OF MERIT



The State of New Jersey

Department of Education
and
Project Active

ALL CHILDREN TOTALLY INVOLVED EXERCISING
Project No. 72-141, Title III, ESEA, P.L. 89-10

Hereby Acknowledges With Sincere Appreciation the Contribution of

for participation in

on

at

PROJECT ACTIVE

Deputy Assistant Commissioner, Branch of Special Education and Pupil Personnel Services

Project Director

Project Director, Branch of Special Education and Pupil Personnel Services

Physical Education Consultant

NJDE 415-S (3/75)

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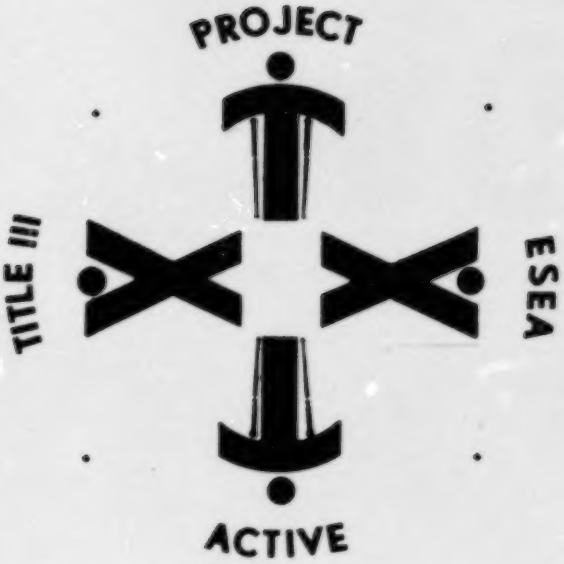
PROJECT
TITLE III
ESEA
ACTIVE